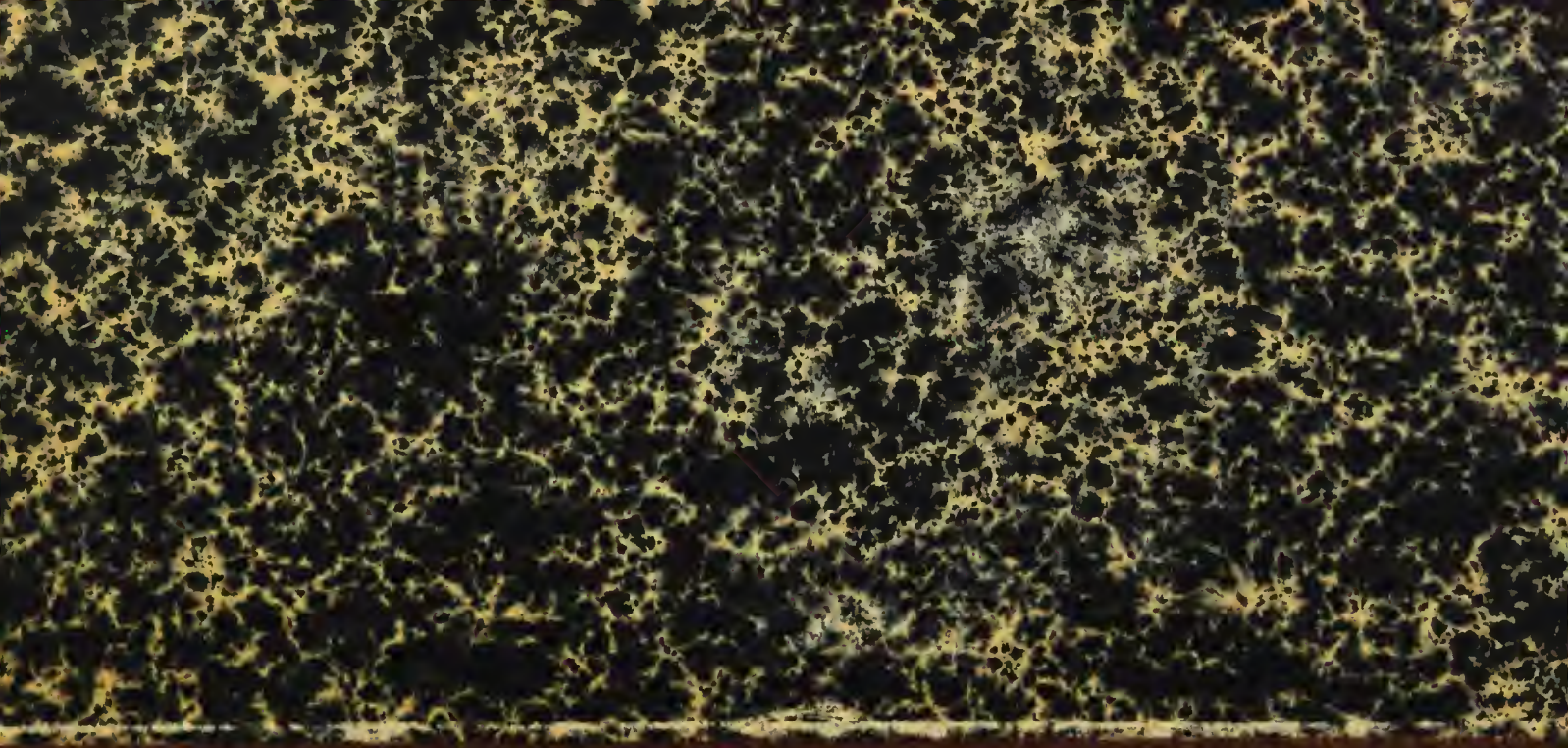

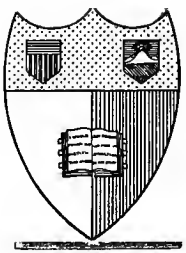

FOOD INVESTIGATION

REPORT

OF

THE FEDERAL TRADE COMMISSION

ON THE

MEAT-PACKING INDUSTRY

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PART IV

THE FIVE LARGER PACKERS IN PRODUCE AND GROCERY FOODS

June 30, 1919

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FEDERAL TRADE COMMISSION.

WILLIAM B. COLVER, *Chairman.*
JOHN FRANKLIN FORT.
VICTOR MURDOCK.
HUSTON THOMPSON.

J. P. YODER, *Secretary.*

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FEDERAL TRADE COMMISSION,
OFFICE OF THE CHAIRMAN,
Washington, 30 June, 1919.

SIR: I have the honor to submit herewith Part IV of the Report of the Federal Trade Commission on the Meat Industry, being a part of the Commission's food investigation undertaken at your direction.

Other parts of the food-investigation report will be presently transmitted.

By direction of the Commission.

Your very truly,

WILLIAM B. COLVER,
Chairman.

The PRESIDENT, *White House.*

REPORT OF THE FEDERAL TRADE COMMISSION ON THE MEAT-PACKING INDUSTRY.

PART IV.

THE FIVE LARGER MEAT PACKERS IN PRODUCE AND GROCERY FOODS.

CHAPTER I.—THE PACKERS' ENTRY INTO UNRELATED LINES.

Section 1.—Purpose and direction of the packers' expanding activity.

The meat packer originally confined his activities to the slaughter of live stock and the sale of meat and animal products. Gradually these activities widened to include both the fabrication of the animal products into by-products and the sale of these by-products. With the development of the refrigerator car and of cold storage came the packer's branch house, and the packer became the competitor of his one-time customer, the wholesaler, in both main products and by-products, and more latterly and in increasing degree competitor of the manufacturer of such food and other specialties as compete with or substitute for his meat products and by-products.

Growing concentration of the packing industry into the hands of the five larger packing concerns, each having its principal office at Chicago, to wit, Swift & Co., Armour & Co., Morris & Co., Wilson & Co., Inc., and The Cudahy Packing Co., marks historically its development from this point. Parallel with the growth of concentration runs the exercise of increasing monopolistic control over meat and its by-products and a rapid expansion into the foods unrelated to the packing industry. Especially important among the unrelated foods thus brought within the field of packer operations are those used as substitutes for meat and for animal fats.

From foods unrelated to the main industry of meat packing as either products or by-products, the five great packers have extended their operations to the production and distribution—and in some cases to the near control—of many commodities other than foods likewise unrelated. The packer's entry into all these unrelated fields, whether covering foods or not, has proceeded along definite and rather intelligible lines (see Exhibit I for classified lists, including

unrelated nonfoods). It is the unrelated foods, however, to which it is proposed to confine this volume of the report.

First, there are those commodities unrelated to the main industry of meat packing as either products or by-products which compete with packing-house products. The packer, recognizing canned fish and vegetables, and poultry, dairy, and cotton-oil products as substitutes for meat and animal fats, began manufacturing them or buying them for resale. Intensive use of equipment and organization no doubt was one motive for this widening of activity. But only by a control over these substitutes could he hope to retain any advantage he might have in control over meat supplies. The same would hold true of the substitutes for the packer's other products.

Second, there are those lines unrelated to the main industry of meat packing as either products or by-products which go to the same markets to which the packer's established lines go. Instead of confining the salesman to beef extract and bouillon cubes on his visits to the soda-fountain trade, the packer gave him a full line of the supplies needed by that trade—the various flavoring extracts, fruit and nut syrups, and prepared drinks. The packer began the manufacture of some of these and the purchase of others and established the soda-fountain department. The packer had an established trade in meats and other packing-house products with the grocer through the branch-house and peddler-car route. He added breakfast foods, breadstuffs, coffee, and other unrelated groceries of a similar character. Here again economy in the use of the selling organization was the alleged purpose, but a firmer hold on the trade for established lines by supplying it with all other lines called for resulted and seems to be the controlling purpose. In some cases control of the line appears to have been the goal.

Third, there are those lines unrelated to the main industry of meat packing as either products or by-products which are used in the manufacture and handling of packing-house products and of which the packers were at first large purchasers for their own use only. The advantages of having a regular, adequate, and altogether satisfactory supply and of securing the manufacturer's profit led the packer into the manufacture of some of these lines, for example, salt and ice, used in the packing and handling of meats, and later, in order to reduce the unit cost of their manufacture by increasing the output, into selling them. Other of these lines, for example, such seasoning ingredients as cinnamon, cloves, and nutmegs, used in the preparation of foods, he continued to buy, but instead of buying for use he bought in increasingly larger quantities for resale. Reduction in overhead unit selling costs on established lines was an additional incentive to engage in the manufacture or purchase for sale of these outside lines, though

perhaps not always achieved. In some cases an attempt to secure control over the lines in question was in evidence. Of the three groups, an examination of Exhibit I shows this to be the least important from either the packer's or the public's point of view.

Section 2.—The packers' entry into unrelated food lines.

The publicly most significant direction in which the five larger meat packers' outside activities are reaching is indicated by their entry into that group of unrelated lines (see preceding section) which they found to be in competition with packing-house products. And of these unrelated lines the public's first concern is with respect to the substitutes for meat and other food products of the slaughtered animal.

VARIETY OF UNRELATED FOODS AND SPECIALTIES MANUFACTURED OR HANDLED.—The Commission's investigation of the meat industry and of perishable, canned, and packaged foods has developed that the large packers are rapidly securing a strong position in the production of many and in the distribution of nearly all kinds of foodstuffs. This expanding movement is at present perhaps more marked in the direction of the manufacture of food specialties. It has already gone far in the distribution of most foods. The numerous branch and sales houses of the five larger packers located at every vantage point of consumption and distribution throughout the country are no longer used for the exclusive sale and distribution of meats and by-products for which they were originally established. (For packers' selling agencies see Exhibits III and IV.)

These packers have entered the wholesale grocery trade, and in practically all the more important centers of distribution they bid fair to dominate a field which a few years ago was almost exclusively occupied by the independent provision jobber and wholesale grocer. With the exception of sugar and flour, the profits on the marketing of which are, without the control of their supply, relatively small and the control of which by the packers has not yet been secured, and with the exception of fresh fruits and vegetables, into the marketing of which the packers have never ventured far, the five larger packers are now large distributors of almost all the commodities originally handled exclusively by the regular wholesale grocery, provision, and produce trade. These include dressed poultry, eggs, butter, cheese, condensed and evaporated milk, butter and lard substitutes, dried fruits, rice, coffee, breakfast and other packaged foods, jellies, pickles, and canned fruits, vegetables, and fish. The list below, while no doubt incomplete, gives these commodities in greater detail and is classified on the basis of trade usage. This trade classification is followed in the treatment of the subject in later chapters.

The following food commodities, unrelated to the main industry of meat packing as either products or by-products, are manufactured and sold or bought and sold by one or more of the five larger packers:

CLASSIFIED LIST OF UNRELATED FOOD LINES OF THE FIVE LARGER PACKERS.

I. *Poultry and game products.*[1]

- Canned poultry:
  - Boned chicken.
  - Boned turkey.
  - Chicken-gizzard linings.
  - Chicken loaf.
  - Chicken pâté.
  - Chicken soup.
  - Chicken tamales.
  - Deviled chicken.
  - Deviled turkey.
  - Potted chicken.
  - Potted and devlled chlcken, assorted.
  - Potted turkey.
- Egg albumen.
- Eggs (canned).
- Eggs (desiccated).
- Eggs (frozen).
- Eggs (in case):
  - Duck.
  - Hen.
  - Goose.
- Eggs (whites).
- Eggs (yolks).
- Poultry and game (frozen):
  - Chickens.
  - Ducks.
  - Geese.
  - Guineas.
  - Pigeons.
  - Rabbits.
  - Squirrels.
  - Turkeys.

II. *Dairy products.*[1]

- Butter (creamery).
- Butter (process).
- Butter (renovated).
- Canned milk:
  - Condensed.
  - Evaporated.
  - Powdered.
- Cheese.

III. *Grocery foods (canned, packaged, and bulk).*

1. Cereal and cereal products (including breakfast foods):
   - Buckwheat.
   - Corn flakes.
   - Corn grits.
   - Corn meal.
   - Corn flour.
   - Hominy (samp).
   - Macaroni.
   - Noodles.
   - Pancake flour.
   - Rice.
   - Rolled oats.
   - Spaghetti.
   - Wheat flour.
2. Lard and butter substitutes:
   - Butterine.
   - Cooking oil.
   - Cottonseed oil.
   - Lard substitute (vegetable).
   - Oleomargarine (vegetable).
   - Peanut oil.
   - Vegetable shortening.
   - Vegetable stearin.
   - Vegetole.
3. Vegetable and vegetable products:
   - Canned vegetables—
     - Asparagus (green).
     - Asparagus (white).
     - Asparagus tips (green).
     - Asparagus tips (white).
     - Beans (baked).
     - Beans (golden wax).
     - Beans (lima).
     - Beans (red).
     - Beans (string).
     - Beets.

[1] These products are to some extent, the canned products to a large extent, handled by wholesale grocers.

3. Vegetable and vegetable products—Continued.
   - Canned vegetables—Continued.
     - Cabbage.
     - Celery.
     - Corn.
     - Mixed vegetables.
     - Okra.
     - Peas.
     - Pumpkin.
     - Sauerkraut.
     - Spinach.
     - Squash.
     - Succotash.
     - Sweet potatoes.
     - Tomatoes (pulp).
     - Tomatoes (solid).
     - Vegetable soup.
   - Dried vegetables—
     - Bean flour.
     - Beans—
       - California lima.
       - California small white.
       - Red kidney.
       - Mexican garbanza.
       - Soya.
       - Pinto.
       - Brown Swede.
       - Pink.
       - Navy.
       - Michigan pea.
     - Celery (powdered).
     - Peas.
   - Soya bean oil.

4. Fruit and fruit products:
   - Apple butter (in glasses).
   - Apple butter (in pails).
   - Apple cider.
   - Cranberries.
   - Canned fruit—
     - Apples.
     - Apple butter.
     - Apple sauce.
     - Apricots—
       - In water.
       - Peeled.
       - Sliced.
       - Solid packed.
       - Unpeeled.
     - Blackberries.
     - Blueberries.

4. Fruit and fruit products—Cont.
   - Canned fruit—Continued.
     - Cherries—
       - Black.
       - Red sour.
       - Royal Anne.
       - Red pitted.
     - Cherry juice.
     - Cold-pack cherries.
     - Cold-pack peaches.
     - Cold-pack raspberries.
     - Figs.
     - Gooseberries.
     - Grapes.
     - Grapes (white muscat).
     - Jams—
       - Apricot.
       - Blackberry.
       - Blackberry-apple.
       - Cherry-apple.
       - Fig.
       - Grape.
       - Orange marmalade.
       - Orange-apple marmalade.
       - Peach-apple.
       - Pineapple.
       - Plum.
       - Raspberry-apple.
       - Strawberry-apple.
     - Jellies—
       - Apple.
       - Currant.
       - Grape.
       - Grape-apple.
       - Plum.
       - Raspberry-apple.
       - Strawberry-apple.
     - Loganberries.
     - Oranges.
     - Peach butter.
     - Peaches—
       - Sliced.
       - White cling.
       - Yellow cling.
       - Yellow free.
     - Pears.
     - Pineapples—
       - Broken slices.
       - Grated.
       - Sliced.

4. Fruit and fruit products—Continued.
   Canned fruit—Continued.
      Plums—
         Egg.
         Green gage.
         Purple.
      Preserves—
         Blackberry.
         Cherry (red sour).
         Currant.
         Gooseberry.
         Pineapple.
         Plum.
         Raspberry.
         Strawberry.
      Prunes.
      Strawberries.
      Raspberries—
         Black.
         Red.
      Raspberry pulp.
      Rhubarb.
   Cherries (imported).
   Cherries (imitation crême menthe).
   Cherries (red crushed).
   Cherries (white).
   Cherries (whole red imitation maraschino flavor).
   Grape compound.
   Dried and evaporated fruit (in box and bulk)—
      Apples.
      Apricots.
      Figs.
      Grapes.
      Peaches.
      Prunes—
         Italian.
         French.
         California.
      Raisins.
5. Canned and cured fish:
   Canned fish—
      Herring.
      Oysters.
      Salmon.
      Sardines (in mustard).
      Sardines (in oil).
      Shrimp.
      Tuna.
   Frozen Fish.
   Herring (cured).

5. Canned and cured fish—Continued.
   Mackerel (salt).
   Salmon (barreled).
   Sardines (smoked).
6. Condiments, relishes, etc.:
   Allspice.
   Catsup.
   Cinnamon.
   Chili sauce.
   Chow chow.
   Cloves.
   Ginger.
   Horseradish.
   Marshmallow topping.
   Minced clams.
   Mustard.
   Mustard and cream.
   Nutmeg (ground).
   Olive oil.
   Olives (cured).
   Olives (ripe).
   Olives (stuffed).
   Oyster cocktail sauce.
   Pickles (cucumber).
   Pepper (ground).
   Pepper (red).
   Pepper (white).
   Pepper (whole).
   Pimento.
   Sage.
   Salad dressing.
   Salad oil.
   Salt.
   Tabasco sauce.
   Table sauce.
   Tomato puree.
   Tomato relish.
   Tomato sauce.
   Vinegar.
   Worcestershire sauce.
7. Sundries:
   Cocoa.
   Coconuts.
   Coffee (bulk).
   Coffee (packaged).
   Honey.
   Molasses.
   Peanut butter.
   Peanuts.
   Syrup (cane).
   Syrup (corn).
   Syrup (maple blend).

IV. *Soda-fountain supplies* (see Chap. V. sec. 8, for list and discussion).

EXTENT OF PACKER CONTROL.—The proportion of the trade in the above list of commodities handled by the five larger packers will vary with the commodity, the locality, and the dealer whose business is being absorbed. Owing to the maze and secrecy of the packer's method of conducting much of his business, exact statistics on many of these commodities are not available for the country as a whole which will show just how far the packer's control has reached. Many companies manufacturing or handling these commodities are controlled by packer interests, no hint of which is disclosed by the names under which they operate, and even a thorough-going examination may fail to uncover the packer connection in every case. Again, a considerable volume of the business may be covered by agent's buying and selling contracts, by brokerage or other similar arrangements, or by dealings on the board of trade, no adequate or straightforward records for which are kept or disclosed.

It is shown in this report that the packers are large wholesale dealers in produce. Four of the big packers, Swift, Armour, Wilson,[1] and Cudahy, handled in 1918 through their principal and subsidiary companies, not including family-controlled companies, 136,190,550 pounds of dressed poultry, or 49.5 per cent of the estimated shipped dressed poultry, and 202,984,278 dozens of eggs, or 33 per cent of the estimated shipped eggs (see sec. 2, Chap. III, and Exhibit IX). The figures for Morris were not available. If products handled by all companies in any way controlled by the five great packers were included and if returns were available from all the five, it would probably be shown that the proportion of control over the estimated shipped poultry products would for 1918 equal the trade's estimate of 65 per cent for 1917.

The same four members of the packer group handled in 1918 through their principal and subsidiary companies, but not including family-controlled companies, 155,962,975 pounds of butter and 186,691,551 pounds of cheese (see sec. 1, Chap. IV, and Exhibit IX). Returns from Morris were not available. If dairy products of all the five great packers, including all their controlled companies, were included in these totals they would be materially increased. However, such part of the packer sales of cheese as was reported for 1918 amounted to 49 per cent of the country's total factory-made cheese of that year.

Of the total packs of canned milk (in cases) for 1917 and 1918 Libby, McNeill & Libby, a Swift concern, alone distributed respectively 9.2 and 10.4 per cent (see sec. 1, Chap. IV).

[1] Some duplication is involved in the Wilson sales owing to the inclusion of certain interplant shipments and shipments between plants and branch houses, which the company reports as being unable to exclude.

It is also shown in this report that Armour, through the Armour Grain Co., is a large factor in the cereal and breakfast food business, on the producing as well as handling side; and that Armour & Co. within the year 1917 became "the largest rice dealer in the world," handling more than 30,000,000 pounds during the 11 months ending February 2, 1918, though dealing in but little prior to that period (see sec. 1, Chap. V).

Production of lard compounds and substitutes by the five great packers, including all their affiliated companies, was, for the first six months of 1917, 49.4 per cent of the total output of interstate slaughterers and cottonseed-oil manufacturers, constituting the great bulk of the production of the United States. Production of oleomargarine for the same period was 51.1 per cent of the total produced in the United States. The percentages representing the amounts handled are, for both lard substitutes and oleomargarine, somewhat larger than those given above, since they include outside purchases. Direct company sales in tonnage figures for 1918 (including sales by principal and subsidiary companies but not by family-controlled companies) for the five packers [1] showed an increase in lard substitutes of 43 per cent over corresponding sales for 1916, and in oleomargarine of 119 per cent (see sec. 2, Chap. V).

In the handling of canned fruits, vegetables, and fish and of other foods both wide range of product handled and rapid growth by the five packers are shown. In some items a large proportion of the total pack is indicated. The canned-food sales of Libby, McNeill & Libby alone amounted in 1915 [2] to 138,068,844 pounds and in 1918 to 449,290,822 pounds, an increase of 225 per cent. For the four-year period 1915 to 1918 these sales of the Libby company reached the enormous total of 1,179,074,122 pounds (see Exhibit XVII A). In 1917 Libby sold 33 per cent of the total pack of asparagus and 11.5 per cent of the total pack of kraut and in 1918, 27 per cent of the total pack of pineapple and 9.7 per cent of the total world pack of salmon (see secs. 3, 4, and 5, Chap. V). Sales for the other packers segregated by commodities, if available, would show a high packer total.

Armour's tonnage sales of canned vegetables and sundries, including condiments, evaporated milk, rice, canned and dried fish, and peanut butter, but not including canned fruits and preserves, tonnage sales for which were not available, were, in 1916, 61,386,920

[1] From Swift & Co. production figures only were available. Some duplication is involved in the Wilson sales owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

[2] After the report had gone to press Libby, McNeill & Libby revised its sales figures for 1915 and 1916 on canned pineapple, salmon, milk, tomatoes, and kraut. The revised figures, except those for tomatoes for 1916, are larger than the earlier figures reported by the company. See Exhibit XVII A and note 3 of that exhibit.

pounds, and in 1918, 196,066,848 pounds, a gain of 219 per cent. For the years 1916, 1917, and 1918 the total tonnage on these items amounted to 365,213,661 pounds (see Exhibit XVII B).

Wilson's tonnage sales[1] of condiments and preserves and canned fish, fruits, and vegetables were, in 1915, 6,822,242 pounds, and in 1918, 121,648,154 pounds. The sales of 1918 were almost 18 times those of 1915. The total sales for the four years on these items amounted to 172,931,943 pounds (see Exhibit XVII C).

In addition to the minimum statistics for the country as a whole on packer activity in these various commodities, estimates are presented which have been furnished the Commission by many individuals covering their own localities or business, and these are conclusive as to the strong tendency. (See Exhibits VIII and XII).

THE PACKERS' UNDUE ADVANTAGES AND UNFAIR PRACTICES IN COMPETITION.—That the packers have extraordinary buying and marketing power—due to certain advantages, perhaps not always unlawful, but certainly often unjustifiable—is pointed out in detail in Chapter II, which treats of their selling agencies, transportation advantages, and storage facilities. It is there shown that the packers have, through their more or less monopolistic business of slaughtering, secured nation-wide buying and selling outlets, a constant supply of funds at a lower rate of interest than is open to their competitors, preferred transportation services, and, in some cases, lower transportation rates for their nonmeat lines, and a control, direct or indirect, of 44.8 per cent of the total cold-storage space of the country; that these advantages are being made use of in establishing themselves in the business of handling groceries and produce; and that their claim of superior efficiency in merchandising these commodities under equality of privilege and opportunity has never been established.

Numerous complaints of questionable competitive practices on the part of the five larger packers in the production and handling of these unrelated foods are presented. In the buying of produce these practices appear most often as local-price discriminations, price agreements, manipulation of prices through operations on produce boards, division of buying territory, and operating under bogus names. (See Chaps. III and IV). In the handling of produce and groceries in wholesale receiving and distributing centers questionable competitive practices complained of run to forcing full packer lines on retailers, eliminating wholesale dealers by securing control of their supplies or outlets, misbranding, selling short weight, operating under trade and bogus independent names, manipulating prices on boards of trade, local price discrimination, and speculating in food commodities. (See Chaps. III, IV, and V.)

[1] Some duplication is involved in the Wilson owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

PACKER ACTIVITY AND THE PUBLIC INTEREST.—The extent to which the packer should be permitted to enter these unrelated food lines (even assuming legitimate competitive methods) is a matter which the public interest alone should determine. Two questions, primarily economic, are involved: Does this widening of activity result in additional economies of production and distribution? Does it result and will it continue to result to the public in lower prices and better quality of product and service? A third question, not here discussed, relates to the ultimate effect of such vast and powerful organizations on the political and social fabric of American institutions.

It is probable that a centralized control over an entire industry with full coordination of all its parts would, assuming equal efficiency of labor and equipment, show results in the production and distribution of goods superior to the results flowing from a control widely distributed, such as is characteristic of the competitive system. But it is also probable that unless in some way a considerable element of the tonic of competition could be infused into such a system a certain flabbiness of industrial tissue would result. Furthermore, unless this control rested in those responsible to the public at large, not only would any advantage in cheaper production resulting from centralized control be likely not to go to the consumer but the consumer would always be in danger of an actually higher monopolistic price.

Adequate and comparable cost records of production and distribution have not been kept by the packers nor by their competitors in these unrelated food lines, and without these records relative efficiency can not well be conclusively determined. There are at least two possibilities: The packer's volume of business under centralized management may give him lower unit costs, which, with or without unfair competitive practices, are employed to squeeze out or discipline competitors, and which during the time of this process inures to the benefit of the consumer in lower prices. Competitors out or whipped into line, the way is open to such rise in prices as the traffic will bear. On the other hand, the packer may have no lower costs, but through unfair practices, possible because of his financial power and widely distributed operations or through special privileges not yet pronounced legally unfair, competitors are consecutively by localities put out of business.

In either case the outcome is untoward. Competition is substantially lessened, and the tendency is toward monoply.

Section 3.—Packer food specialties.

The packers have made rapid growth in recent years in the handling of food specialty lines. These will be treated at greater length in sub-

sequent chapters. It is desirable here, however, to point out that most of these specialties are now or were once carried by the wholesale grocers; that the packers' disproportionately rapid growth in handling them has been at the expense of the grocer; and that the packers have failed to include many of their specialties when reviewing their activities.

Nor would it be particularly enlightening to make comparison of the total volume of the wholesale grocery business in the United States with the total volume of the packers' specialty lines. The total volume of the wholesale grocery business includes the two items of sugar and flour, not largely carried, if at all, by the packers, but constituting about 35 per cent of the grocers' volume. On these items there is little net profit and often loss. It is in the specialty lines where lies the possibility of largest profit, and in these lines the packer is particularly active.

Armour & Co. has widely announced in its newspaper advertising of recent months that "our participation in grocery lines represents only 4.6 per cent of our total business." Inquiry on the part of the Commission elicited the explanation that this statement was for the fiscal year 1918, and that these grocery lines included the following four groups:

(1) Canned fish, canned vegetables, and sundries (including canned fish of all kinds, cured fish, barreled salmon, canned vegetables of all kinds, sauerkraut, rolled oats, spaghetti, noodles, pancake flour, corn flakes, rice, raw beans and peas, bean flour, coffee, corn syrup, molasses, evaporated milk, solid tomatoes, and table condiments).

(2) Canned and dried fruits (including all fruits so packed).

(3) Fruit preserves (including extracts, phosphates, syrups, crushed fruits, nuts in shell, and all soda-fountain supplies).

(4) Grape juice (including grape juice only).

The following items, not primarily related to meat packing, all of which are grocery items and all of which are handled by Armour & Co., were not included in the lines comprising the 4.6 per cent of the company's total sales: Compound lard (vegetable), cooking oils (vegetable), oleomargarine (vegetable), salad oil (vegetable), canned fowl (chicken and turkey boned), and peanut butter. On these items, with the exception of peanut butter, Armour & Co. stated that it was unable to furnish its sales. The sales of peanut butter alone, one of the items of lesser importance, amounted to $575,000.

Nor did the 4.6 per cent include the four produce items—butter, cheese, eggs, and dressed poultry, all food specialties, though not all now carried by wholesale grocers. For the fiscal year 1918 Armour & Co. reported the sales on these items as amounting to $77,853,268.22, or 9 per cent of the company's total sales of $860,861,838.17 for that year.

Thus, if the sales figures for the specialty items above mentioned not included in the 4.6 per cent (all primarily unrelated to meat-packing and all now or once handled by wholesale grocers) were available and included, the percentage would be many times greater.

In addition to the above it should be noted that many meat lines, such as cured meats of all kinds, canned meats, and mixed canned meats and vegetables, as well as lard and lard substitutes (animal), were formerly handled largely by wholesale grocers and are now distributed wholesale by the packers.

As showing the rapid increase of percentage of the grocery specialty sales referred to in Armour's advertisements to total sales for the year 1918 over 1916 and of produce specialties not included in Armour's advertisments, the table below is given. (For Armour's produce sales of 1915 and 1917 see Exhibit II.) Not all specialties which were handled are included, as pointed out above. For some of the items Armour & Co. reported the 1918 sales unavailable.

TABLE 1.—*Sales of certain specialty lines and proportion total sales, Armour & Co., fiscal years 1916 and 1918.*

[For produce sales of 1915 and 1917 see Exhibit II.]

	1916		1918	
	Dollars.	Per cent.	Dollars.	Per cent.
Total sales, all lines	525,000,000.00	100.0	860,861,838.17	100.0
Canned fish and vegetables and sundries	[1] 4,231,622.62	0.8	29,355,000.00	3.4
Canned and dried fruits	507,294.10	.1	5,845,000.00	.7
Fruit preserves (soda-fountain supplies)	[1] 1,103,024.70	.2	3,595,000.00	.4
Grape juice	[1] 554,095.31	.1	1,025,000.00	.1
Total above specialties	6,396,036.73	1.2	39,820,000.00	4.6
Dressed poultry	6,266,131.73	1.2	8,694,788.00	1.0
Eggs	8,943,538.68	1.7	24,542,966.41	2.8
Butter	9,639,467.07	1.8	23,861,822.35	2.8
Cheese	10,922,797.86	2.1	20,753,691.46	2.4
Total above produce specialties	35,771,935.34	6.8	77,853,268.22	9.0
Total specialties and produce specialties	42,167,972.07	8.0	117,673,268.22	13.6

[1] The 1916 sales of canned fish and vegetables and sundries, of fruit preserves and grape juice, are for branch houses only. The sales for 1918 are for all selling agencies. For all selling agencies the sales for the fruit-preserving and grape-juice departments combined were, for 1916, $1,942,427.28. But these sales were not available separately for the two departments.

The above table shows that the two groups of specialties, on which alone sales figures in dollars were available, constituted 13.6 per cent of the total sales in 1918. Other nonmeat-food specialities would increase this percentage. For the group covered by Armour's advertisements the percentage for 1918 was nearly four times that for 1916.

One of Swift & Co.'s specialities is poultry and dairy products. For the fiscal year 1918 this company reports total sales of dressed poultry, 78,683,000 pounds; eggs, 91,621,980 dozens; butter, 66,621,000 pounds; cheese, 64,072,000 pounds. To arrive at what percentage this represents of Swift's money sales, average prices may be applied to these quantities. The average wholesale prices [1] at Chicago

[1] These prices were furnished the Commission by the Bureau of Labor Statistics, United States Department of Labor.

for 1918 were, for dressed poultry, $0.2734 per pound; for butter (creamery first), $0.4728 per pound; for eggs (fresh firsts), $0.4431 per dozen; and for cheese (whole milk American twins), $0.2641 per pound.

In each case the Chicago price is several cents lower than the New York price, at which much of Swift & Co.'s products sold, and the grade of butter for which the price above is given is the lowest of the three grades for which prices are furnished. Moreover, these prices are the average for the year, the low price being of equal weight to that of the high. But the heavy sales of a concern having large storage facilities, such as Swift & Co., would occur in seasons of high prices and its weighted average selling price would run higher than the weighted average of all sales, including those of wholesale houses which do not hold their products for any long period. On this basis a minimum sales figure for these four products of $110,500,000 for Swift & Co. is arrived at. The total 1918 sales for all products for this company as published in its Year Book for 1919 were $1,200,000,000. This gives for the sales of the four products a minimum percentage of the total sales of 9.2 per cent.

Wilson & Co., Inc., states that its specialty—the canned food, preserve, and condiment business—was less than 4 per cent of its business in 1918. But if other specialties handled were included this percentage would be greatly increased. In a representative branch-house district of this company embracing six branch houses the sales of dressed poultry, eggs, butter, and cheese during the six months ending April 30, 1919, amounted to 21.2 per cent of the total sales and almost 30 per cent with the items of lard compound, butterine, canned goods, and other groceries included.

It should be pointed out again that each percentage given in the above discussion is on the total volume of business in all lines for the one company and not on the country's total volume of sales for the one specialty or group of specialties.

It should be remembered in considering this section that any figures herein given as representing the total volume of business in produce and grocery specialties controlled by any packer interest should be taken as minimum. Various selling companies whose ownership and control have been completely divorced from or have never been vested in the packer company and whose sales are therefore not included by it are nevertheless absolutely dominated by the identical interests that dominate the packer company. Thus the sales of Libby, McNeill & Libby, engaged wholly in the manufacture and sale of so-called specialty lines of foods, and one of the largest concerns of its kind, would not, being ostensibly separated from Swift & Co., be reported by that company as included in its sales, although the interests that control the one control the other.

The sales of many other companies not directly subsidiary to a packer company, but controlled in the interest of a packer company, should be included to determine the total volume of produce and grocery business under the control of the five great meat packers.

It has been announced [1] recently that Wilson & Co., Inc., is intending to get out of the canned food and grocery business, in that it is selling its stock interests in the Fame Canning Co., which it owns entire, and in the Wilson Fisheries Co., in which it has a controlling interest, to Austin, Nichols & Co., Inc., wholesale grocer, New York City, which is being reorganized with a capital stock increased to 300,000 shares authorized, 150,000 of which are common, with exclusive voting rights and without par value.[2] The preferred shares have a par value of $100. Under the plan as announced [3] the holders of the common stock of Wilson & Co., Inc., receive the privilege of subscribing for four shares of the Austin, Nichols & Co. stock at $25 per share for every 10 shares of Wilson common stock owned. There are 200,000 shares of Wilson & Co., Inc., common stock outstanding. The plan, as announced, thus gives to the Wilson stockholders an option on 80,000 shares, or a majority interest, in the authorized voting stock of the new Austin, Nichols & Co., Inc.

Moreover, the entire issue of common stock is placed in a voting trust [4] consisting of five trustees, trust certificates being given the owners of the stock in exchange therefor. These five trustees, a majority of whom control the policy of the reorganized company, represent the financial interests involved.[5] The president of the reorganized company, it is announced,[6] will be C. W. Patterson, former head of the Wilson & Co., Inc., canned goods department and president of the Fame Canning Co. The directing and financing interests are in part in common with those of Wilson & Co., Inc.[7]

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[1] Journal of Commerce and Commercial Bulletin, New York, September 15, 1919.

[2] Certificate of Incorporation, Austin, Nichols & Co., Inc., dated August 23, 1919.

[3] Moody's Manual, Industrials, 1919, p. 2949.

[4] See Voting Trust Agreement, dated August 25, 1919.

[5] The following are the voting trustees: Harry Balfe, former president of Austin, Nichols & Co.; Maitland F. Griggs, former director of Austin, Nichols & Co.; Gates W. McGarrah, president Mechanics & Metals National Bank, New York City, and until recently associated with Thos. E. Wilson, on the board of directors of the Guaranty Trust Co., New York City; C. W. Patterson, former president of the Wilson subsidiary, the Fame Canning Co.; and M. A. Traylor, associated with packer representatives on the boards of directors of the following Chicago banks (see pp. 359–360 of Part I of this Report): First National, First Trust & Savings, Chicago Cattle Loan Co., Live Stock Exchange National, Stock Yards Savings, and Central Manufacturing District.

[6] Statement of Harry Balfe, former president of Austin, Nichols & Co., August 1, 1919. in announcement by William Salomon & Co.

[7] The same four New York banks which are so intimately related through a common personnel and a financial interest to Wilson & Co., Inc., (see pp. 341–343 of Part I of this Report) are also in the same way related to the reorganized Austin, Nichols & Co. On the latter's board of directors, consisting of 12 members, are C. J. Schmidlapp, vice president Chase National Bank; J. R. Swan, vice president Guaranty Trust Co.; Albert Rothbarth, Hallgarten & Co.; and Jacques Weinberger, William Salomon & Co. Serving also on this board are M. A. Traylor, president First Trust & Savings Bank, Chicago, and associated on the bank's board of directors with Thos E. Wilson, Nelson Morris, J. A. Spoor, and James B. Forgan, all identified with packing interests; C. W. Patterson, the Wilson president of the Fame Canning Co., which is now being taken over by the new Austin, Nichols & Co., and Lee H. Wakefield, holder of 49 per cent of the Wilson Fisheries Co., the majority interest of which is being absorbed by the new company.

Under the public announcement of this arrangement, acts under the arrangement itself will show whether there has been actual divorcement of Wilson & Co., Inc., from its grocery business.

That the specialty field is divided is evidenced by the statement of Swift & Co. that it does not handle any coffee, rice, or cereals, and does not intend to do so, and by the statement of Wilson & Co., Inc., that it has handled a little rice and beans, but is not handling them now and does not propose to handle them again. While Mr. Armour claims for his company the largest business in cheese in the country, he concedes this place to Swift & Co. in butter and also in poultry. In cheese there is a division of factories and in butter and poultry a division of territory, but in the latter there is an apparent relinquishment of a considerable portion of the field by Armour & Co. to Swift & Co., as shown by the relatively small number of egg and poultry packing plants and buying stations as compared with that of Swift & Co.

If Armour's grocery specialties are largely concentrated along such lines as rice, cereals, certain kinds of canned foods and cheese, and each of the other of the five greater packers concentrates his specialties along a few other well-chosen lines, the profitable fields become pretty well covered and pretty well ruled by the five.

Meanwhile, that the packer is shouldering on the wholesale grocer the burden of the flour and sugar sack is made evident by the following letter to the Commission, written by the president of a large wholesale grocery company in the South:

> When we read in the papers over a week ago, Armour's statement that the packers were handling a lot of goods outside of their line because the trade could not get them elsewhere, we thought we would write you, but concluded that it would not be of any service to you. However, we just can not get the thought from our mind. It seems to us that their handling these goods just to give the people something they could not get through the wholesale grocers, is well illustrated by the fact that before the Food Commission went into effect nearly all the packers' branch houses on this market had started handling flour and sugar, but as soon as the Food Commission put a maximum margin of profit on these two articles that did not cover the actual cost of handling the goods, the packers immediately discontinued handling both sugar and flour. This seems to us an excellent illustration of how much they cared to give the people goods. The wholesale grocers had always been handling these goods, as well as everything else the packers tried to handle outside of their own line, and have taken good care of the trade. They did it in good shape when the packers quit handling them, just as they did before.

PACKER ACTIVITY IN FOOD SPECIALTIES REACHING OUT FROM DISTRIBUTION TO MANUFACTURE.—The discussion in this section has been confined almost wholly to the distribution of specialty foods by the five large packers. The fact, however, should not be lost sight of that, though this expansion in distribution has already gone far and is therefore more apparent, the more marked and more significant

movement just at present is in the manufacture of these specialty foods. More significant because all that is manufactured by the packers will, in addition to what is purchased, be distributed by them, and because also control over the distributive processes becomes more certain the nearer to the sources of production control reaches.

This movement in the direction of the manufacture of specialty foods appears in the packing of poultry products obtained directly from the grower, in the manufacture of dairy products from milk bought from the producer, in the putting up of cereals and breakfast foods in packaged form, in the manufacture of butter and lard substitutes, and in the canning of fruits, vegetables, fish, pickles, condiments, etc. In the manufacture of all these specialty lines this report shows the packers' increasing activity. In the canning of foods, the one most recent and outstanding development is Armour's proposal to finance a cooperative fruit-packing plant in California (see p. 241) and his organization in 1919 of the National Fruit Canning Co., Seattle, Wash., a subsidiary of Armour & Co.

CHAPTER II.—ADVANTAGES OF THE PACKERS IN BUYING AND MARKETING.

The Marketing Power of the Packers.

Section 1.—Alarm at their competitive power.

There can be no doubt about the general alarm felt by wholesalers in all sections of the country at the competitive power displayed by the packers in the marketing of foods other than those which naturally emanate from the packing house. Jobbers now make no complaint of the loss of their trade in cured meats and other packing-house products, such as canned meats, the marketing of which goes more or less naturally with the marketing of fresh meats. It is the advent of the packers in lines not related to the slaughtering business that causes so much anxiety among jobbers. This anxiety is felt, not merely by weak and inefficient firms, but by the strongest and most efficient as well. The complaint is general that the field of their operations has been restricted, that they can not hope for that natural expansion to which their energy and ability entitle them, and that, if the present development continues, they must more and more be confined to supplying their immediate localities. Among produce dealers these complaints are general; among wholesale grocers they are well-nigh universal; among the manufacturers of food and related specialties there is an awakening apprehension that, distribution having been seized, manufacture will be the next field to be occupied. This fear is based upon a large number of notable instances of invasion into the manufacture of prepared cereal foods, fish, spice, canned goods, and the like.

The complaint is not merely that new competitors have entered these lines of trade; new jobbers may appear and new jobbing centers arise without causing alarm. It is not because of superior ability in packer salesmen or buyers that packer competition is feared. Hundreds of jobbers are willing to match their skill and their judgment under free market conditions against the skill and judgment of the packers. What they fear is the manipulation of market conditions through the large buying power which comes from large control of capital and credit, and through the speculative buying which often characterizes packer dealings; they fear the packers' control of storage facilities, the superior transportation service which they have been permitted to build up for themselves, the power which comes from numerous controlled outlets and markets reached by their peddler-car system, their branch-house organization and kindred selling agencies. Any one of these factors would, other things being equal, make the packers strong competitors; the combination of them gives to the packers such a power in the marketing of foods as will, in

the opinion of the best informed jobbers, make them masters in any field they may choose to enter, if that power remains unchecked.

So, too, in manufacturing, the greater the packer control over distribution and the outlets of trade, the easier their entry into and conquest of the field of manufactured specialties; a movement that is now well under way.

THEIR BUYING POWER.—What the buying power of the great packers is, so far as it rests upon their control of capital, is indicated by the consolidated balance sheet of the five companies, as of November 2, 1918. It shows outstanding stocks of the par value of $307,201,800, surplus and undivided profits, $248,104,223, or a total of $555,306,023. Their combined borrowings of this date amounted to $746,841,740. The details of these outstanding obligations are shown in the following table:

TABLE 2.—*Big packer control of capital.*

[From the Consolidated Balance Sheet as of Nov. 2, 1918.]

	Armour & Co.	Swift & Co.	Morris & Co.	Wilson & Co., Inc.	The Cudahy Packing Co.	Big Five (total).
Notes payable	$132,674,410	$188,865,284	$44,769,959	$54,719,601	$31,455,608	$452,475,862
Accounts payable	18,593,422	69,504,073	3,420,215	17,932,251	12,306,886	121,756,847
Bonds and mortgages	106,280,600	31,368,000	10,730,000	15,645,186	8,585,245	172,609,031
Total liabilities	257,548,432	289,728,357	58,920,174	88,297,038	52,347,739	746,841,740
Preferred stock	3,725,400	.....	.....	10,476,400	8,550,500	22,752,300
Common stock	100,000,000	150,000,000	3,000,000	20,000,000	11,449,500	284,449,500
Surplus and undivided profits	73,413,816	96,912,938	46,508,065	15,802,119	15,467,285	248,104,223
Total net worth	177,139,216	246,912,938	49,508,065	46,278,519	35,467,285	555,306,023
Total liabilities and net worth	434,687,648	536,641,295	108,428,239	134,575,557	87,815,024	1,302,147,763

It is little wonder that jobbers and manufacturers of foods so frequently point to the "unlimited funds" of the packers as one of the sources of their competitive power. No one can question the right of the packers to enjoy the advantages which come to them because of good standing in the money markets. It is important to note, however, that their position has not been gained by success in merchandising in groceries and produce or manufacturing of specialties, but by success in the more or less monopolistic business of slaughtering, and that the power so gained is being used to establish themselves in other lines of trade. There are two ways in which the strong financial position of the packers may give them an advantage: (1) In securing a lower interest rate than their competitors have to pay and (2) in having a more constant supply of funds, and generally "unlimited" funds, for carrying out a buying policy once embarked upon.

The average rate of interest paid by the Big Five for their fiscal year 1918 on all interest-bearing obligations was 5.9 per cent. While doubtless there are jobbers in favored localities who enjoy as low a rate of interest as this, there are many who have to pay a substan-

tially higher rate. The jobber is confined to his own community for his supply of funds; if the rate of discount is high, he has no recourse but to pay it; if there is a stringency, he must curtail his operations. But not so with the packers; they borrow in every market at home and abroad; their banking connections provide an advantageous contact with finance at widely distant points, so that if the interest rate is high in one market and low in another, they may take advantage of the lower market; if there is a stringency in one market and money is easy in another, they can turn to the more favorable market.

These are advantages which follow naturally from permanently successful operations on a large scale, extending over a wide territory, and the packer has as good a right to them as he has to carry on the larger scale operations out of which they grow. But these successful large-scale operations, it may be noted again, are due in no small part to the packers' monopolistic position in meat packing.

Another source of buying power is found in connection with the organization built up for selling fresh meats and packing-house products. The packers have access to all the marketing agencies open to the jobber, such as the brokerage and commission houses, and in addition they have their own extensive organizations through which purchases as well as sales are made. Under such conditions the large concern is likely to have a distinct advantage over small competitors in securing early information about goods offered for sale. In periods of short supplies, such as the last three or four years have been, this advantage is often decisive. So, too, at such times is the advantage which comes from extensive credits. "They can simply buy us off our feet," said a leading wholesale grocer in the Middle West. In periods of short supplies and rising prices it has been usually a safe policy to buy heavily, and the more nearly a monopolistic control is secured, the safer becomes a bold buying policy. A notable example of such operations is seen in Armour & Co.'s rice dealings, described in another part of this report.

THEIR CARRYING POWER.—In the intermediate stage of merchandising, between buying and selling, the packers have points of advantage. Here again their large control over capital is effective; sales are not likely to be forced upon them because of a lack of funds. Their control of storage facilities constitutes another advantage in the holding of stocks for favorable market conditions.[1] The control of suitable handling and transportation facilities gives distinct and measurable advantages, as has been shown elsewhere, and it is necessary here only to point out that the transportation system of the packers magnifies their buying power, their holding power, and their selling power.

[1] See secs. 13 to 19 of this chapter.

THEIR SELLING POWER.—The packers regard it as highly complimentary to the efficiency of their marketing organization that there should be so much alarm over their progress in marketing nonmeat foods. If, it is said, no "unfair competition" is shown, the complaint against them resolves itself into a charge that the packers are efficient merchants; that they can sell goods more cheaply to the consumer than their competitors can. While no detailed study has been made of the relative cost of marketing nonmeat foods through the packers' organization, on the one hand, and the usual jobbing houses, on the other, it is obvious that certain advantages may be enjoyed which will enable the packer to sell cheaply, which are in no sense an indication of economic efficiency from the social point of view, and which do not fall within the legal prohibition against "unfair competition."

An interest rate which rests on banking connections and not purely on superior credit standing is an example of such an advantage. Favorable transportation facilities supplied by the carrier in response to pressure from a powerful shipper is another. Moreover, a packer may, for the time being, elect to sell groceries, for example, more cheaply than a competitor, not because he can handle them more cheaply than a jobber can, but because in view of the large tonnage of meats handled, for which the organization must be maintained, he may be willing to handle groceries, temporarily at least, on a margin that will add anything, however slight, to his net revenue. He may, in fact, find it in the long run profitable to sell temporarily at a loss if by so doing he can gain control of a line of trade. Underselling is not an unfailing sign of social efficiency.

Section 2.—Marketing agencies: The branch houses.

NUMBER AND DISTRIBUTION.—The chief agency employed by the big packers for marketing their products is the branch house. There are in the United States, 1,327 of these branches operated by interstate slaughtering companies, of which 1,188 are controlled by the Big Five and their controlled companies. More than half the branch houses are located in the Atlantic Seaboard States, a large proportion of this fraction being in the North Atlantic States.[1] The more sparsely settled regions of the South and the West are reached by another marketing agency peculiar to the packer organization, the route car, popularly known as the peddler car. The magnitude of the business done through these two agencies is shown in the following table:

[1] For further details of the regional distribution of branch houses, see Pt. III, Chap. III. See also for their location by cities Exhibit III. The difference in numbers given in the two lists is due mainly to the fact that the tables in Pt. III were made to show the outlets for meat, while the figures in the present chapter and in the exhibit include all known outlets with a branch-house organization engaged in the wholesale handling of foods. In a few instances those reported as "retail markets" have also been included. The figures for the Big Five in this chapter are for 1916, unless otherwise stated.

TABLE 3.—*Branch-house and car-route sales of the five large packers, by companies, 1916.*

Item	Domestic branch house and car route.	Domestic branch house.	Car route.
Swift & Co	$360,363,646	$302,389,590	$57,974,056
Armour & Co	266,006,904	247,143,503	18,863,401
Morris & Co	120,505,514	97,613,613	22,891,901
Wilson & Co., Inc	83,317,086	65,824,591	17,492,495
The Cudahy Packing Co	84,328,292	70,372,254	13,956,038
	914,521,442	783,343,551	131,177,891

The branch house is a natural outgrowth of concentration in the packing industry. With the disappearance of local slaughterers and the development of the refrigerator car, the need arose for some kind of marketing agency for handling fresh meats at the consuming centers. The need was at first met by a body of commission merchants and independent wholesalers. The wholesale grocers had long played a conspicuous part in the distribution of cured meats and other products of the packing houses, but not being fitted for handling fresh meats they soon lost their trade in cured meats. As time has gone on the packers have more and more assumed the function of wholesaler, not only of their own products, but of purchased goods as well. The advance beyond distribution into manufacture is a later development, and since it has begun the two have progressed together toward monopoly.

It has not always been easy to determine among wholesale agencies which were packer controlled and which were not, but by 1888 the Armour interests were known to be operating 11 branches, Morris 9, and Cudahy 1. The number of Swift's branches at that date is not known. Beginning the next year the number of these establishments began to increase rapidly, and by 1899, the first year for which the number belonging to Swift & Co. is available, the Big Five were operating 544, by 1908 the number had risen to 887, and in 1912 it stood at 1,110. As already stated, the number operated by the Big Five and their controlled companies in 1916 was 1,188. The investment involved in this number of branches is not available; but it can be given for those operated by the Big Five and their 100-per-cent-owned subsidiaries in 1918. The "branch-house investment," as shown by the consolidated balance sheet for these companies November 2, 1918, stood as follows:

Armour & Co	$98,225,023
Swift & Co	82,669,274
Morris & Co	18,504,133
Wilson & Co., Inc	20.986,912
The Cudahy Packing Co	19,667,092
Total Big Five	240,052,434

The spread of these investment figures can not be given for all the companies, but the large items in the branch-house investment of Armour & Co., for August 22, 1918, can be given as follows:

Fixed investment	$14,329,000
Equipment	1,638,340
Products	40,831,570
Accounts receivable	21,744,260
Bills receivable	883,847
Miscellaneous supplies	580,000

BRANCH-HOUSE ORGANIZATION.—These branches are something more than selling agencies. They are factories in a way, where, for example, meats are cured and sausage manufactured; they are cold storages for holding stocks for limited periods; and, so far as goods are withdrawn from them to ship to surrounding territory or for supplying car-route cars, they may not improperly be called warehouses; but primarily they are wholesale markets.

Each branch house has its own manager, office force, and sales and delivery organization. The branches are grouped into districts and placed under the supervision of a district manager or superintendent. While some apparent independence in the management is given by the methods followed by various companies, each branch is just what the name implies, not an independent, self-directing organization but an integral part of a vast system of distribution acting under a common authority. The meats, especially carcass meats, are often handled by the branch on a commission basis, the commission ranging from 48 to 65 cents per hundred, but this does not mean that the manager is acting in the capacity of commission merchant. He, like all the other branch-house employees, works on a salary basis, and the commissions merely supply means for paying the expenses of the house. It is desirable from the company's point of view to make the manager feel that the business is his in the sense that he must make it pay. Wilson & Co., Inc., since 1916 has followed the plan of assigning a definite capital for each branch, according to its needs, and charging interest thereon. The circular announcing this changed policy illustrates the way in which this sense of independence is encouraged:

> Effective with the June, 1916, period, all branches * * * of this company will be put on a capitalized basis. Under this new system all branches will pay interest on the capital used in operating the business. This, you understand, includes investment in the building, fixtures, equipment, etc. Where buildings are not owned by the company, branches will be charged with the rent and will pay interest on the fixtures equipment owned by the company. The company will draw drafts on branches for product shipped as follows:
>
> A. products:[1] Full amount of invoices.
>
> B. products: An Arbitrary Amount.
>
> This will make it necessary for all branches to watch their collections very closely, so as to have money in the bank and be prepared to meet drafts as they arrive.

[1] "B. products" with this company means mainly carcass meats; "A. products" other than carcass meats.

The administrative charge which has been paid in the past will be discontinued.

Under this system the company will furnish you with building, equipment and capital with which to do business. I will expect you to handle your branch on a profitable basis. Every branch will be operated on the same basis as an independent concern. Every item of expense is under control of the manager. Any losses shown by the branch will be an actual loss to the company. We will expect all managers to carefully consider every item of expense.

We figure, on this system, the results shown by the branches from now on will be due entirely to the management of the same. We have confidence in the managers and are looking forward to profitable results for the balance of the year.

This new system has been adopted on the recommendations of Mr. Wilson, who feels with this system a manager is in a position to handle his branch in the same manner in which he would if he owned the business, as he controls the capital involved and the necessary expense, to operate his business.

On the new system you will be charged 5% on the capital invested. In addition to this all operating expenses will be taken care of by the branch as in the past. We figure this new system is going to be a great help to our business in several ways. We figure in doing away with this administrative expense that branches are in better position to take on some business on a small margin of profit, which will not only enable them to increase their volume of business, but it will increase their earnings as their future expenses in the future will not be affected, as they have been in the past, by increased volume, due to the basis of figuring our administrative charges. * * *

An example of the way the capital of the branch is determined by Wilson & Co., Inc., is shown in the following extract from a report of the General Auditing Department on the "Capital Requirements of the 45th St. [New York] Provision Department," dated February 18, 1918:

We have surveyed the figures covering business done by the 45th St. Provision Dept., for the year of 1917 and report as follows:

Total sales for the year were $974,652.93 The average days outstanding were 8.06, thus making a turnover of 45.28. This gives us as capital required to carry outstanding accounts, the sum of $21,525.00

The average inventory for the year was $41,375.93, which figure is not true at the present time, inasmuch as the freezer inventory has been reduced. We have therefore based our calculations of average inventory on the figures for the last 6 months of 1917, which results in an average of $28,060.56.

We thus find a net capital required of $49,585.56; for our purposes $50,000.00.

We believe these figures will be satisfactory to all concerned and suggest that they be continued until the close of June period, at which time the requirements are to be again reviewed and any necessary adjustments made.

* * *

But, as a matter of fact, no real independence exists. The branch-house manager is charged or "pays" prices fixed absolutely by his company for goods of the company's production. He is not at liberty to buy where he will; he is not free to pursue his own selling policy; but is subject to instructions from the district superintendent, the district inspector, and the managers of the various departments from which he draws supplies at the plant. The coordination of the selling organization within itself and with the manufacturing end of the business is made an objective of the packers. This is illustrated in a

circular of Morris & Co. to its branch house managers and salesmen announcing a visit of the department managers in 1917:

The success of Morris & Company and therefore your success, rests in your hands. It is at your end of the business we have to depend to increase our volume. We can buy our products and manufacture them on as good a basis as anyone giving equal quality. One strong point in your success and our success is cooperation. The reason for this trip our Department Managers are making is to get better acquainted with you, so they can cooperate with you more closely and in this way increase your sales and profits. It is necessary to keep in close personal touch with our different Department Managers. If our products are not arriving in first-class shape, if the quality is not what it should be, if you are out of line on prices, if competitors are selling products that we do not at the present time manufacture, it is necessary that you should take these matters up with our Department Managers, so they can put you in line to do business. Our District Managers are in close touch with all houses and therefore are able to see things on a broader scale and give profitable advice to Branch House Managers.

STRATEGIC POSITION OF THE BRANCH HOUSE.—These houses are something more than branches. They constitute an important part of a great system of production and distribution. To say, therefore, that Swift & Co. has 415 branch houses and that Armour & Co. has 370 such houses and employs in connection with them more than 2,400 salesmen does not disclose the full strength of the big packers' position in the wholesale market. The manner in which the houses are located and supplied to meet every grade of want, the opportunities they furnish for gathering market and trade information, the way in which they are connected by every means of communication with one another through the district superintendent and with the central office by private wires, the mails, the telephone, and by weekly and monthly reports, give them a selling power more than proportioned to the number of outlets they furnish. Accepting the fact of concentrated control over the production of meats, no one will raise any objection to the size or efficiency of the organization built up for marketing products of the packing houses; but developed for the purpose of making outlets under their own control for their fresh meats and packing-house products they have become also the centers of distribution for other foods, many of which they have only recently begun to produce and many others which they do not produce at all. During a period when the general tendency has been to increase the number of wholesalers and to restrict the area within which each house operates there has grown up in competition with these more or less localized dealers the most wide-spread and powerful selling organization in the world.

The big packers do not hesitate to say that the branch house has been an essential factor in the expansion of their industry and is now essential to the maintenance of it. The important thing to be noted here is the position in which the competitors of the packers who do not handle meats are placed by reason of this widespread organization. Some discussion of its economies is given below.

SUBSTOCKS.—In addition to the full-fledged branch houses some of the companies have outlets closely associated with the branches and subsidiary to them. Swift & Co., for example, has a considerable number of "Sub-stocks"—that is, houses with an organization in all respects like the branch house, except that they have no accounting department. Sales tickets and reports of all kinds are sent to a neighboring branch, through which all accounting to the district office and the Chicago office is done. In 1918 the company had 39 of these "Sub-stocks", 24 of which were located in the South and Southwest.[1]

"STORAGE AND DELIVERY" HOUSES.—Still another outlet closely associated with the branch house system is found in the "storage and delivery" houses. These are merely the establishments of local merchants who enter into contract with the packing company to store goods as shipped and to deliver them to customers secured by the company's salesman attached to a branch house having jurisdiction of the territory. The "storage and delivery" service is performed on a percentage basis. The merchant, in addition to performing this service, may buy and sell on his own account, but he may be regarded as acting essentially for the packer. He is not an ordinary commission merchant. The company secures the orders and makes collections. This arrangement enables the company to reach regularly, at carload rates, consuming centers which could not support a branch house or could not do so without cutting into the sales territory of neighboring houses.[2]

Section 3.—Hotel-supply companies and the hotel trade.

In addition to the branch-house system the packers have access to the markets by all the avenues open to their competitors such as the hotel-supply companies, some of which they own, and wholesale, commission, and brokerage houses. The hotel and restaurant trade seems to be a part of the food distributor's business that requires special care. It stands midway between the retail and the wholesale trade. In character the hotel is an ultimate consumer and might be expected to buy its supplies from retailers, as other consumers do; from the point of view of volume and economy in delivery it may, and often does, surpass all but the largest retailers and may claim the right to buy at wholesale prices. There is every indication that the buyers of this class understand the strength of their position and that the packers, like other distributors, employ a good deal of strategy in securing these important outlets for their goods—primarily for their meats, but for other lines as well.

In recent years the packers have acquired or organized special houses under the name of hotel-supply companies in the larger cities for handling the hotel and restaurant trade. Examples of

[1] For a list of those houses, see Exhibit III B.
[2] For a list of the "storage and deliveries" of Swift & Co., see Exhibit III C.

these in New York are the Metropolitan Hotel Supply Co., owned and operated by Swift & Co.; the Atlantic Hotel Supply Co., operated by Armour & Co.; the Gotham Hotel Supply Co., by Wilson & Co., Inc., and the National Hotel Supply Co., operated by Morris & Co. In Philadelphia, Boston, Washington, D. C., Los Angeles, and Jacksonville, Fla., similar selling agencies are employed by the packers for securing the hotel, restaurant, and lunchroom trade.

PURCHASE OF HOTEL STOCK.—Just as half a century ago the anthracite carriers embarked on a scheme of securing tonnage for their roads by the purchase of mines, so some of the big packers seem to be embarking on a policy of buying stock in hotel companies as a means of securing these important outlets for their tonnage. The agents of the Commission found it difficult to secure admissions from the managers of hotels in which packers own stock that such stock ownership in any way influences the purchasing policy of the hotel; stewards, it was held, buy where they can get the best terms. The correspondence of Swift & Co. leaves no doubt, however, as to the object that company has in buying stock in hotels, or what its opinion is of the purpose of other packers in making such purchases.

On June 16, 1917, Edward F. Swift wrote to L. F. Swift as follows:

I am not in any way agitating the question of Swift & Company taking stock in hotels to influence their supplying the same, but as a matter of information will be pleased to have you advise me what youn understand Swift & Company's policy is.

Also, irrespective of the above, what you know about new New York Central Hotel that is being built in New York City near the New York Central Station, as to whether any outsiders have been asked to take stock in this hotel, and if you know whether the supplies will be bought on the open market or otherwise.

On June 20, 1917, L. F. Swift replied as follows:

Answering your letter of the 16th concerning Swift & Company's policy in connection with taking stock in hotels, I will go back to 1910, which was the time this first came up.

McAlpin: I highly recommended taking $50,000 stock in the McAlpin Hotel, which carried with it their entire business. It was strongly objected to by C. H. S. and L. A. Carton, and you voted with them, so that I, unfortunately, retracted my position. I should have forced it through. Sol. Zahn, the hotel man in New York took what we refused and I don't doubt his profits are $50,000 annually. No contract for supply.

Biltmore: The next was the Biltmore Hotel. Armour took stock to the amount of $200,000, but we had no opportunity. No contract to supply their meat, but this is assumed, and they hold the trade. I don't doubt his profits exceed $50,000 annually. * * *

Commodore: The new hotel you speak about on 42nd Street is the Commodore. Edwards, Moon, and I have seen Mr. Bowman five or six times and begged him to let us become stockholders, but he has refused, claiming the stock is all sold or something of that kind. Armour has, I think, $500,000. While there is no contract to supply the meat, it is assumed he gets it. There is no doubt but that the stocks in both of the above hotels will be profitable. Moon sees Mr. Bowman almost every day.

Manhattan: The same owner has taken on the Manhattan Hotel which the Metropolitan [a Swift concern] supplies to the extent of about $500 per week, which is quite small. We are trying to get more but can not get it away from Armour.

Ansonia: * * * Capital—$100,000, 7% cumulative preferred, $50,000 common. John McE. Bowman, President, and Wm. J. Cummings has recently acquired a stock ownership, and in order to assist him and Mr. Bowman to straighten out the affairs of the hotel, Swift & Company have loaned them $75,000, and some of the individuals $25,000 additional, with the understanding that we will get their business.

Pennsylvania: The Pennsylvania Hotel in New York City is to be run by Mr. Statler. Mr. George Edwards and I have seen him several times and have a partial promise of his business. But he does not ask anybody to take stock. Equal Commodore in size.

Policy: As to our policy; I should say every opportunity we can get to do anything like the above, we would better do it. There are a good many questionable hotel enterprises which I think should be turned down, and I have recently turned down three or four;

The remainder of the letter reviews the facts about four well-known hotels—two in New York, one in Boston, and one in Baltimore. It may be said that according to information given the agents of the Commission by the secretary of the Beau-site Co., which operates the Biltmore Hotel, Mr. Armour owns only $70,000 of preferred stock out of a total capital stock of $3,000,000; that he owns $750,000 preferred in the Bowman Hotel Corporation, which operates the Commodore Hotel; and that he is interested in the Manhattan Hotel through ownership of stock in the Armbow Operating Co., which operates the hotel—a name suggestive of the sole and equal owners, Mr. Armour and Mr. Bowman.

The following extracts from the Swift correspondence throw further light upon the Ansonia Hotel transaction referred to in L. F. Swift's letter. On April 11, 1917, L. F. Swift wrote L. A. Carton, treasurer of Swift & Co., that for personal reasons he and other members of the firm had advanced $25,000 in connection with the Ansonia, and that he found when he got into it—

That Mr. John McE. Bowman, head of the Biltmore, Commodore, and Manhattan Hotels was behind the Company. He now puts up a proposition for us to take $75,000 cumulative preferred stock, to be retired $10,000 each year, in return for which we will receive the Ansonia Hotel business and it seems to me quite necessary that we do it.

You know that I tried to make an investment in the Biltmore and Commodore Hotels, hoping to get their business, but it was impossible; Armour had arranged it in advance.

On April 18, 1917, instructions were sent to the company's representatives in New York—

to approach Mr. Bowman and make the best terms you can so as to secure Swift & Company in their advance to him of Seventy-five thousand dollars and to get his trade in return.

Satisfactory terms were made and the $75,000 advanced; but it was not till toward the end of the year that arrangements were perfected for starting the hotel under the new management. On Sep-

tember 24 James P. Moon, for Swift & Co., wrote the vice president of the hotel company:

You have met Mr. T. P. Kidd, Manager of the Metropolitan Hotel Supply Co., through whom Swift & Company would like you to arrange for the supplies of Swift's products to the Ansonia Hotel; and Mr. J. P. Davenport, No. 1 Hudson Street, New York, manager, Libby, McNeill & Libby, for such supplies as you may require from them.

On the 28th the vice president replied:

* * * The moment our new company is started, I will notify Mr. Kidd and Mr. Davenport to call on me—then we will commence giving you some "sure enough" business. In fact, every dollar's worth that the Ansonia, buys in your line—will be bought from you.

The correspondence of Swift & Co. shows that the purchase of stock in other hotels was considered as a means of securing these important outlets for their products. During the summer of 1917 the question of taking stock in the United Hotels Co. was considered. This company is the owner of a line of hotels in medium-sized cities, and planned to supply their own and other hotels with all kinds of furnishings. On September 18, 1917, L. F. Swift wrote E. F. Swift as follows:

I think the time has come when Swift & Company have got to adopt a decided policy about their hotel business and not have any more of this happy-go-lucky way. * * *

Now comes the question of the United Hotels Company, who have hotels in the following cities: Birmingham, Ala., Erie, Pa., Hamilton, Ont., Newark, N. J., Peoria, Ill., Syracuse, N. Y., Utica, N. Y., Worcester, Mass.

I understand we can get their business by taking $100,000 preferred stock. * * *

Here are eight hotels fairly started. It is quite different from a new hotel which has not started yet,—a good many of which I suppose we would, from necessity, have to turn down; but anything with the right earmarks, like the "Washington Hotel" now being built, should, in my opinion, be accepted. * * *

A conference a day or two later convinced Mr. Swift of the soundness of the Hotels Company, but there were important questions of trade policy that caused further hesitation. Some of Swift & Co.'s customers, two of which there had been serious talk of taking over, were selling the Hotels Company and probable complaints were foreseen. Mr. L. F. Swift suggests on September 20:

* * * We might take this investment, giving them the cash by October 1st, which is the time they want it, and form a policy on the other questions open in the meantime.

We need not try to press any advantage from this stock during the months of October and November if we didn't want to, and use it when we needed it and had a policy formed. * * *

Mr. Charles H. Swift was in full accord with other members of the firm as to the purpose of stock purchase in hotels and as to the desirability of having a definite hotel policy. On September 18 he wrote L. F. Swift as follows:

* * * I agree fully that Swift & Company should decide upon a policy in regard to these investments.

The opportunity before us of the United Hotels Company is a good illustration to work on. I do not know of any other field where we could get as much hotel business for as moderate an investment as is indicated in this case. I understand they would like us to take $150,000 preferred stock instead of $100,000, as you suggest; and I shall be very glad indeed to see the policy worked out accordingly.

In the light of the Swift letters quoted above and in the absence in this voluminous correspondence of any conditions as to prices upon which the packer secures the trade of a hotel, it may be assumed that, so far as this form of control over outlets for goods extends, it places distinct limits upon the field of competition. It is a matter of concern, therefore, to other dealers in foods whether markets are to be secured in this way. It is also a matter of concern to other stockholders in the hotel companies who have nothing to sell. It is a matter of concern to consumers that the supplies for the hotel they patronize are arranged for on the basis of stock ownership of a little stock rather than on the basis of competition. Under such circumstances the limits set upon prices are those to which monopoly everywhere is subject rather than those fixed by competitive forces.

Section 4.—Other marketing agencies.

WHOLESALE, COMMISSION, AND BROKERAGE HOUSES.—Historically, these were the agencies first employed to sell the products of the packing house when the process of centralization and shipment under refrigeration began to lengthen the radius of the market for such products. For the small packers and other manufacturers of foods they are still the main outlets to market; and, notwithstanding the elaborate system of distribution built up by each of the big packers, they, themselves, also continue to make extensive use of them.

While no extended study of sales through these channels has been made, a few details will illustrate their use. Armour & Co. reports consignment sales in 1916 amounting to $15,498,494, of which $9,716,736 represented edible products. A list of the company's consignees as far as ascertained, 22 in number, is given in Exhibit III D. The list for Swift & Co. in 1918 shows 17 regular consignees, and Morris & Co. reports 7 such consignees in addition to those bearing the name of the company.

The packers also make use of the brokerage houses, though no information is available to show how extensive it is. The correspondence of Armour & Co. shows that in such dealings they expect and sometimes receive preferential treatment. In February, 1918, the district superintendent of branch houses in an eastern district wrote the canned food department that he had been buying through a broker who had control of the output of 200 canneries, but had been unable to get any commission rebate:

Our people here have had up the question of a split of commission without success. It occurs to me that one reason they are so arbitrary about it

is that they are sending it to you direct. * * * If they won't split the commission, we are naturally going to throw all this business we can to people who do.

By the end of March the brokerage company, which had never before given a trade discount, agreed to give to Armour & Co. a discount of 1 per cent on all purchases made through this particular office on the understanding that their brokerage should be paid in full by Armour & Co. and the rebate settled each month by check direct to Armour & Co. in order that the deal might "be kept confidential."

The board of trade offers another avenue to market. This outlet is relatively more important to the small packers than to the big companies. The big companies use this agency freely for making purchases as well as for making sales. The deliveries of Armour & Co. amounted in 1914 to $769,328, in 1915 to $507,142, in 1916 to $4,867,363, while their purchases for the same years were $568,657, $2,724,160, and $158,976, respectively. The deliveries of Swift & Co. in 1916 amounted to $1,030,198, and purchases to $10,070,305. The Cudahy Packing Co. in 1914 purchased 15,162,749 pounds and delivered 1,046,673 pounds on the board of trade, and in 1916 the purchases and deliveries stood at 3,408,113 pounds and 3,282,370, respectively.

Selling agencies of controlled companies.—The sales of many of the products of the packers are made by controlled companies which manufacture or buy them and sell direct to the trade. If the company manufactures, the products may be handled through branch houses or other selling agencies of the principal packer company. A list of Big Five companies producing or handling goods not derived from the slaughtered animal is shown in Exhibit IV.

Foreign outlets.—The information collected concerning the foreign outlets for the Big Five is incomplete, but some data are available to illustrate the importance of the foreign marketing organization. Exhibit III E gives a list of foreign selling companies and a list of foreign branch houses as far as reported by the companies, but the list of branch houses especially is known to be incomplete. A British Board of Trade report of 1909[1] shows that at that time Armour & Co. was known to have four branches, the Swift Beef Co. six, the Morris Beef Co. three, the Hammond Beef Co. three, and J. W. Curry & Co., Ltd., then supposed and now known to be a Swift concern, had five shops in Smithfield Markets in London. This was a total of 21 stalls out of 344 stalls in that market. In 1914, according to a later official report of the British Government,[2] the Swift Beef Co., Armour & Co., and the Morris Beef Co. had 27 shops in this market. A study dealing with the trust question in

[1] Minutes of evidence taken before the departmental committee on combinations in the meat trade, Cd. 4661, 1909, and the Conclusions of the Committee, Cd. 4643, 1909.

[2] A report by Mr. Cabburn to the high commissioner, based upon a return prepared by the Central Markets Committee of the Corporation of the city of London. This is quoted in the Report of the Royal Commission on the Meat-Export Trade of Australia, April, 1915, Cd. 7896, p. 22.

Great Britain, published by the British Government in 1919, in speaking of the control of imports by combinations abroad, shows a much larger number of outlets controlled by American companies than had previously been reported. The report says:

> Imported meat is an outstanding example. In the year before the war nearly 60 per cent. of the imported beef supply of the United Kingdom was controlled at its places of origin by the American Meat Trust which further had a considerable hold on the meat distributing trade in this country, having 144 wholesale branches in 64 towns, and about a thousand retail shops.[1]

RETAIL MARKETS.—An interesting feature of the situation in the United Kingdom is the development of a large number of outlets through retail houses. No such development has been found to have taken place in this country. The packers do maintain retail markets at a number of their plants primarily for the convenience of their employees, and a few authenticated cases have come to the attention of the Commission of packer ownership of retail stores elsewhere. The Union Meat Co., controlled by Swift interests, reports that it owned and operated three retail markets in Portland, Oreg., in 1918. The Cudahy Packing Co. reports the operation of a retail store at Los Angeles, Calif., under the name of the Palace Market, Meat & Provision Co. When in 1917 Armour & Co. acquired the E. M. Stanton Co., a packing concern at Spokane, Wash., it took over and continued to operate several retail stores which that company owned at Spokane. In reply to an inquiry from Armour's representative at Spokane about the policy of disposing of these retail stores, the Chicago office wrote, October 31, 1917, as follows:

> It is still the opinion here that the retail markets should not be sold except for special reasons to be agreed upon, but that they should continue to be operated by the Stanton Company or other outside company and not in the name of Armour & Co.

Recent information from Armour & Co., however, is to the effect that these retail markets acquired with the E. M. Stanton Co. have all been disposed of, five of them in 1919, the last of which was sold but recently.

A number of complaints have been made in different sections of the country that retail stores were controlled by various packers; but a tendency on the part of the big packers to extend their activities in this direction has not been demonstrated to the Commission.

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[1] A Study of Trade Organizations and Combinations in the United Kingdom, prepared for the Committee on Trusts, Ministry of Reconstruction, by John Hilton, Secretary of the Committee. Cd. 9236, 1919, p. 28. The study is published with the report of the Committee. Since this section was written the large packers have publicly denied that they have any retail shops in England, or, presumably, in the United Kingdom. The Commission has made no investigation of the matter, relying entirely on the accuracy and trustworthiness of the document cited.

Section 5.—Branch-house turnover and expense as bearing on branch-house economy.

The most important part of the marketing organization of the big packers is the branch house. While extended investigation has not been made of the relative cost of selling foods through these agencies and the usual channels of trade, data are presented in the tables which follow showing the chief features of branch-house economy for six Wilson branch houses of varying size, under one management. These houses are located in eastern territory. They may or may not be typical. The period covered is the six months ending with April, 1919.

The following table gives a summary statement of the operations of the six branch houses for the period, without audit or revision by the Commission:

TABLE 4.—*Operations of six branch houses, comprising one eastern district of one of the big packers for the six months ending April 30, 1919.*

[Figures not audited or revised by the Commission.]

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	Six branches.
Opening inventory	$43,395	$38,347	$42,820	$143,700	$37,148	$22,209	$327,619
Plant purchases	913,775	967,532	1,186,569	721,270	160,723	149,040	4,101,909
Outside purchases	86,218	59,440	44,121	105,732	52,622	54,635	402,768
Total	1,043,388	1,065,319	1,273,510	973,702	250,493	225,884	4,832,296
Closing inventory	43,334	32,144	50,796	73,063	24,439	16,834	240,610
Cost of sales	1,000,054	1,033,175	1,222,714	900,639	226,054	209,050	4,591,686
Sales	1,019,937	1,044,076	1,230,817	923,004	233,165	214,254	4,665,253
Gross profit	19,883	10,901	8,103	22,365	7,111	5,204	73,567
Other losses or earnings	10,341	2,917	− 853	8,730	− 950	1,586	21,771
Total gross profit	30,224	13,818	7,250	31,095	6,161	6,790	95,338
Total expense	34,132	30,435	40,190	55,440	12,829	12,908	185,934
Net profit or loss	−3,909	−16,617	−32,940	−24,345	−6,668	−6,118	−90,596
Expense per dollar of sales, cents	3.3	2.9	3.2	6.0	5.5	6.0	3.9
Expense per 100 pounds, cents	78	67	79	152	138	146	96

Since "cost of sales" represents merely the arbitrary billing price from the plant to the branch house, the resultant "gross profit" and "net profit or loss" are not true indexes of the financial returns. Moreover, sales include, no doubt, some sales to subsidiaries. Unaudited and unrevised figures for all Armour & Co.'s branch houses for the year ending Nov. 2, 1918, indicate a net gain by its branch houses of 2.135 cents per dollar of sales and a net expense of 4.38 cents per dollar of sales.

ANALYSIS OF SALES.—Tables 5 and 6, which follow, giving an analysis of the sales of these six houses, are presented for the light which this analysis will throw on the subsequent figures of expense and turnover.

TABLE 5.—*Sales—Weight and amount—Six branch houses comprising one eastern district of one of the five large packers—Sales by classes of goods with ratio of each to total sales for the six months ending April 30, 1919.*

[Figures not verified by the Commission.]

	Weight (pounds).	Amount.	Per cent of total—	
			Weight.	Amount.
Fresh meat [1]	10,071,882	$2,031,549	52.19	43.64
Cured meat [2]	3,529,022	1,049,713	18.28	22.55
Lard, compound, and butterine	865,076	220,214	4.48	4.74
Produce [3]	2,617,077	986,747	13.56	21.20
Canned goods and groceries [4]	1,408,367	189,207	7.30	4.06
All other	809,045	177,459	4.19	3.81
Total	19,300,469	[5] 4,654,889	100.00	100.00

[1] Includes carcass meats, beef cuts, fresh pork, and offal.
[2] Includes smoked, sweet pickled, dry salt, and barreled meats, and also boiled ham.
[3] Includes butter, poultry, eggs, and cheese.
[4] Includes canned meats, fish, vegetables, and fruit, and coffee and other grocery items.
[5] This total of items is at slight variance with total sales in Table 4.

The foregoing table shows that 52.19 per cent of the weight of sales and 43.64 per cent of the amount of sales were made up of fresh meats, and that butterine, lard and lard compounds, produce, canned goods, and groceries, commodities generally handled by jobbers, constitute 30 per cent of the total amount of sales.

Some of the branches of this and other companies do not handle all these lines of goods. All the branches in this group, however, handle all the lines but in varying proportions as shown in Table 6.

TABLE 6.—*Sales—Amount and proportion—Six branch houses comprising one eastern district of one of the big packers—Sales by classes of goods and by branches for the six months ending April 30, 1919.*

[Figures not verified by the Commission.]

Branch.	Fresh meat.		Cured meat.		Lard, lard compound, and butterine.	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
No. 1	$596,037	58.44	$139,616	13.69	$36,929	3.62
No. 2	675,712	64.72	57,944	5.54	19,684	1.89
No. 3	517,254	42.38	449,682	36.85	42,223	3.46
No. 4	186,673	20.22	259,819	28.14	57,849	6.27
No. 5	17,867	7.66	76,183	32.67	22,770	9.77
No. 6	38,006	17.75	66,469	31.02	40,759	19.02
All branches	2,031,549	43.64	1,049,713	22.55	220,214	4.74

Branch.	Produce.		Canned goods and groceries.		All other.	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
No. 1	$194,185	19.04	$37,753	3.70	$15,420	1.51
No. 2	215,772	20.67	34,076	3.26	40,892	3.92
No. 3	169,443	13.88	25,299	2.07	16,543	1.36
No. 4	275,421	29.84	53,653	5.82	89,591	9.71
No. 5	86,482	37.09	26,553	11.39	3,310	1.42
No. 6	45,444	21.21	11,873	5.54	11,703	5.46
All branches	986,747	21.20	189,207	4.06	177,459	3.81

TURNOVER.—The more frequent turnover of stock is pointed to by the packers as one of the causes of their efficiency as distributors of foods through the branch house. The figures for the six branch houses under consideration on their face would indicate a high degree of efficiency according to this test. In the tables which follow, dealing with turnover, the rate of money turn is computed by dividing the average inventory into the net sales rather than the cost of sales, for the reason that the "cost" is arbitrarily determined by the method of billing goods to the branch house. The margin between the "cost" and the sales is, however, smaller than it normally is in an independent marketing organization, and the resulting turnover figures are substantially what they would be if the "cost" had been used for a dividend.

The following table shows for the six houses taken together and for each house in the group the total sales by weight and amount, the average inventory by weight and amount, the turnover for six months and the turnover for a year on the assumption of doubled sales and the same average inventory:

TABLE 7.—*Sales, average inventory, and turnover—Weight and amount—Six branch houses comprising one eastern district of one of the five meat packers for the six months ending April 30, 1919—Yearly turnover estimated on basis of the six months' turnover.*

[Figures not verified by the Commission.]

Branch.	Total sales.		Average inventory.		Turnover (6 months).		Turnover (1 year, estimated).	
	Weight (pounds).	Amount.	Weight (pounds).	Amount.	Weight.	Amount.	Weight.	Amount.
Six houses.....	19,300,469	$4,654,889	1,572,515	$314,982	12.27	14.78	25.28	29.56
No. 1.....	4,337,562	1,019,940	356,385	54,163	12.17	18.83	27.90	37.66
No. 2.....	4,492,749	1,044,080	131,624	23,188	34.13	45.02	68.26	90.04
No. 3.....	5,030,451	1,220,444	320,555	63,739	15.69	19.14	31.38	38.28
No. 4.....	3,631,926	923,006	504,876	122,385	7.19	7.54	14.38	15.08
No. 5.....	926,421	233,165	151,997	29,319	6.09	7.95	12.18	15.90
No. 6.....	881,360	214,254	107,229	22,188	8.22	9.66	16.44	19.32

On their face these figures show so decisive an advantage in the important factor of turnover that, other things being equal, wholesale grocers could not hope to compete with the packers in handling foods; for no jobber in groceries can make such a rapid turn of his goods. A study of 108 wholesale grocers in 1916 showed the highest stock turn to be 11.6, the lowest, 2.8, and the common or typical number of turns, 5.7 per year.[1]

But such figures can not be accepted at their face value. They show too much. In this group of branches, under the same management and conducting the same kind of a business, the most striking variation in turnover occurs. Branch No. 2 has a turn three times the average for the group, more than twice that of the next highest,

[1] Bulletin No. 9, Bureau of Research, Harvard School of Business Administration.

and six times as high as the lowest, in the group. The variation and in general the high rate of turn are largely accounted for by the proportion of fresh-meat sales to the total sales. The fresh meats move more rapidly than any other part of the stock. In fact, in the larger branches the amount of carcass meat carried over from day to day is less, often considerably less, than the daily sales; that is, less than a day's supply would show in the inventory taken at the close of business.

Thus, it was found at Branch No. 2 that for six months the sales of carcass meats averaged 18,200 pounds daily, while the inventory showed an average of only 4,400 pounds.

In the case of the small houses in this group the fast-moving fresh meats constitute a smaller proportion of the total sales, and in consequence of this and less frequent arrivals, larger inventories have to be carried. At Branch No. 5, for example, the sales of fresh meats amounted to but 7.66 per cent of the total, as compared with 64.72 per cent at Branch No. 2; while the inventory figures showed an average of 654 pounds of carcass meats on hand with average daily sales of only 218 pounds.

The importance of a well-coordinated transportation system is seen in this connection. No business that was not connected with the source of its supplies by a thoroughly dependable means of transportation could carry on its business on so narrow margin of supply as is shown in Branch No. 2.

It may be stated in passing that of the six towns in which these houses are located, the one showing the next to the lowest average inventory and the highest turnover is the one which is most favorably situated from the transportation point of view.

The turnover is further affected by the storage conditions at the various branches. If space is ample, large stocks of less perishable foods may be carried at the branch as a matter of convenience to the company instead of at the plant, with the result of a reduced branch turnover and an apparent loss of branch efficiency.

These considerations suggest the inadequacy of the rate of branch-house turnover as a test of marketing efficiency, especially in view of the fact that the branch does not stand alone. While as to outside purchases made by the branch house the length of time stock is carried is significant, this factor is of little significance in connection with the much larger part of the purchases made at the plant. For this group of houses plant purchases constitute more than 90 per cent of the total. The packers' turnover and carrying cost are very different things from the turnover and carrying cost of the branch house. It is usually said that fresh meats are disposed of within about two weeks after killing, which would give a company turn of about 26 for the most rapidly moving part of its merchandise.

The turnover of other parts of the branch-house merchandise is much slower. The turn of canned goods and groceries in the six branch houses is shown in the following table:

TABLE 8.—*Sales, average inventory, and turnover—Canned goods and groceries—Six branch houses comprising one eastern district of one of the five large packers for the six months ending April 30, 1919—Yearly turnover estimated on basis of the six months' turnover.*

[Figures not verified by the Commission.]

Branch.	Sales (6 months).	Average inventory.	Turnover (6 months).	Turnover (1 year, estimated).
Six houses	$189,207	$90,394	2.09	4.18
No. 1	37,753	20,935	1.64	3.28
No. 2	34,076	8,647	3.94	7.88
No. 3	25,299	22,390	1.13	2.26
No. 4	53,653	20,858	2.57	5.14
No. 5	26,553	13,097	2.03	4.06
No. 6	11,873	4,467	2.66	5.32

These figures on their face do not indicate extraordinary packer efficiency from the point of view of turnover in handling of groceries, competition in which is chiefly complained of. But again it must be said the figures can not be taken at their face value, since they do not show how long the company carries these stocks before they reach the branch house. The wide difference in the turn of these goods at Branch No. 2 and at Branch No. 3 seems to indicate more skillful merchandising at the former house; and so it would if the branch houses were independent concerns. Branch No. 2 sells 25 per cent more than No. 3 and carries an inventory 60 per cent less. But this may be explained by the fact that the company finds it convenient to carry large stocks at No. 3, while limited storage facilities may make such a policy at No. 2 impracticable. Moreover, the transportation advantages enjoyed by the packer under the mixing rules in official classification territory make it possible for him, because of the ease with which less-than-carload lots of groceries may be shipped at carload rates, to carry lighter stocks of such goods at his branch house than the independent wholesaler must carry.

There is no doubt, however, that the company turn of all commodities marketed through the branch houses is higher than that of wholesale grocers. The turnover of the total business of the big packers for the year ended November 1, 1918, based on total sales and an average of seven inventories (including supplies as well as merchandise) was as follows: For Armour & Co., 6.7; Swift & Co., 7.2; Morris & Co., 7.4; Wilson & Co., Inc., 7.8; The Cudahy Packing., 8.1; and the Big Five, 7.2. This is uniformly a better showing than that made by the grocers with their "common" or typical turn of 5.7, and that part of the merchandise passing through the branch house must have a rate of turn considerably above the average for the total business.

The value of the branch-house turnover figures as a test of efficiency is, however, largely vitiated by the fact that they are not fairly comparable with those of the grocer. The high rate is due to the rapid movement of the bulk of the merchandise, and, while it shows how a large profit may be made on such goods even when turned on a low margin, it throws no light on efficiency in handling the slower moving lines of goods like groceries, though the situation suggests a possibility of loading upon the swift moving goods the expense of carrying those which move at a normal rate.

BRANCH-HOUSE EXPENSE.—Just as the branch-house manager is more likely to speak of his "tonnage" than he is of his amount of sales, so he is more likely in estimating his marketing cost to express it in cents per hundredweight than in a percentage of his sales. In the table which follows the results of both methods of testing efficiency are brought together from the previous tables for the six branch houses under consideration.

TABLE 9.—*Sales—Amount and weight—And expense per dollar and per 100 pounds—Six branch houses comprising one eastern district of one of the five great packers for the six months ending April 30, 1919.*

[Figures not verified by the Commission.]

	Branch No. 1.	Branch No. 2.	Branch No. 3.	Branch No. 4.	Branch No. 5.	Branch No. 6.	Six branches.
Total sales, six months, dollars...	1,019,937	1,044,076	1,230,817	923,004	233,165	214,254	4,665,253
Total sales, six months, pounds...	4,337,562	4,492,749	5,030,451	3,631,926	926,421	881,360	19,300,469
Expenses, six months, dollars.....	34,132	30,435	40,190	55,440	12,829	12,908	185,934
Expenses per dollar of sales, cents.	3.3	2.9	3.2	6.0	5.5	6.0	3.9
Expenses per 100 pounds, cents...	78.7	67.7	79.7	152.6	138.4	146.4	96.3
Turnover, all goods yearly.....	37.66	90.04	38.28	15.08	15.90	19.32	29.56
Turnover, canned goods and groceries, yearly.....	3.28	7.88	2.26	5.14	4.06	5.32	4.18

A comparison of the figures shows a wide difference in the expenses of handling at the branches within the group. The range is from 67.7 cents to 152.6 cents per hundred pounds and from 2.9 per cent to 6 per cent of sales. In general the lowest expenses are found, as might be expected, at those branches where the business is large and highest at the smaller branches. At Branch No. 4, though the volume of business is large, the expense is high, owing to heavy expenses for repairs and for receiving and delivery. In general, also, the low expenses are found at those branches with the most frequent turnover.

In the table which follows an analysis of the expenses of a group of wholesale grocers is given as a means of comparison with the expenses of the six branch houses. The figures are not in all respects strictly comparable, but it is believed that they are essentially so with the exceptions noted. The expenses for the grocers are for 108 wholesale firms, large and small, for the year 1916; those for the branch

houses for the six months ending with April, 1919. The figures for the various items of the wholesale grocers' expense are not the average for all firms, but the typical or most frequent figure in each case, the "common" figure about which the figures from all the wholesalers center; the figures for the branch houses are the average of the six branches. Other points at which the comparison fails to represent the relative marketing efficiency of the two methods of distribution will be pointed out below.

TABLE 10.—*Classified expenses per dollar of sales—Six branch houses comprising one eastern district of one of the five meat packers for the six months ending April 30, 1919, and a group of wholesale grocers for the year 1916.*

[Figures not verified by the Commission. Those for wholesale grocers are from Bulletin No. 9, Bureau of Research, Harvard School of Business Administration.]

	"Common" figure, wholesale grocers (cents per dollar of sales),[1] 1916.	Average figure, 6 branch houses (cents per dollar of sales),[2] 6 months, 1919.
Selling expense:		
Sales force expense	2.3	1.386
Advertising	.07	.....
Other selling expense	.06	.....
Total selling expense	2.5	1.386
Receiving and delivery	1.59	.594
Buying expense	.4	.....
General management and office expense:		
Salaries	1.2	.318
Postage and office supplies	.23	.139
Telephone and telegraph	.05	.077
Credit and collection	.06	.013
Other management expense	.10	.....
Total management and office expense	1.65	.547
Fixed charges and upkeep:		
Interest[3]	1.5	.497
Rent	.4	.259
Heat, light, and power	.05	.039
Storage	.....	.074
Refrigeration	.....	.139
Taxes	.2	.039
Insurance	.11	.010
Repairs of equipment	.05	.064
Depreciation	.1	.009
Total fixed charges and upkeep	2.5	1.130
Miscellaneous expense	.11	.114
Losses from bad debts	.3	.157
Total expense	9.5	3.928
Stock turnover	[4] 5.7	[4] 29.56

[1] The figures in this column are not the average of the 108 houses, but the common or typical figure returned for each item of expense and for the totals.
[2] The figures in this column show the average expense for the six branches considered.
[3] Interest is included with expense for comparative purposes, though not in all cases to be regarded as an actual expense or cost.
[4] Figure represents yearly turnover.

In attempting to consider these figures one is met by the difficulty encountered wherever an analysis of the packers' accounts is attempted. The branch houses are part of a great system of produc-

tion and distribution, and their expenses do not represent the company's cost of marketing the goods which pass through them.

The expenses given above, for example, do not include the cost of maintaining the district superintendent's office, nor any part of the expense of the branch-house department at the main office. These six branches "purchase" three-quarters of a million of goods per month, but no buying expense is shown. This is due, in part, to the fact that nine-tenths of the purchases are plant purchases. And to the extent that these plant purchases are company products there is a clear merchandising advantage; neither the company nor the branch has the expense of seeking out and inspecting supplies. But a considerable portion of these purchases are outside products involving a buying expense not shown in the branch-house figures. In the same way the omission of advertising expense is noticeable. This is not usually a heavy item for wholesalers in foods, but, so far as the packers' advertising campaign of the last year or two is intended to attract purchasers, the expense is a merchandising cost, no part of which is shown in the branch-house figures.

Another item of more weight in the list of expenses is the so-called interest charge, which, though not in all cases to be regarded as a cost or actual expense, is included here for comparative purposes. This item for the six houses amounts to $23,150 for the six months and constitutes 0.497 of a cent per dollar of sales. The common figure for the wholesale grocers is three times as great (1.5 cents). This, for the grocers, is the real imputed interest expense. The branch-house figure shows the branch-house but not the company expense. The branch is charged interest on the branch-house plant, when owned, on equipment and on working capital employed. The interest on working capital is the heavy part of this item, even when rent is interpreted as interest. At Branch No. 1, with average sales of $170,000 per month, the outstanding accounts average somewhat less than one-half that amount. But the branch is charged interest on the goods only while they are in its possession and during the period pending collection; the interest charge on goods while in possession of the company, frequently during the far greater part of the life of the commodity, does not appear anywhere as a merchandising cost. If the exact truth could be shown, however, it would doubtless appear that the grocers' interest charge for merchandising is greater than that of the packers, on account of the longer credit given by the grocers.

The practice of giving long credits results not only in a heavy interest charge but in a considerable expense in another direction. The grocers are at a disadvantage with the packers, if the figures in the table may be regarded as typical, in losses from bad debts. They lose 0.3 of a cent per dollar of their sales, while the branch houses lose

but half that amount (0.157 of a cent per dollar). Wholesale grocers sometimes complain that the packers by reason of their position in the meat industry have been able to force upon retailers a promptness in settling accounts which they, owing to the traditional credit relations between jobber and retailer, can not secure. But, it must be said, if the monopoly power of the packers is used in no more socially injurious way than to shorten the term of credit from a month, three months, or six months, to seven or eight days their power would not be a menace. It is one of the hopeful signs of merchandising everywhere that dealings are approaching more nearly a cash basis.

Other items are open to criticism similar to that passed upon the interest charge. The rent and storage charges of the branch houses combined (0.333 of a cent per dollar) almost equal the rent of the grocers (0.4 of a cent per dollar). If the cost of housing goods before they reach the branch were added, the cost to the packer would doubtless exceed that to the grocer. Refrigeration, already a heavy merchandising expense for the branch house, would be materially increased if the company expense properly chargeable to merchandising were added. A wide disparity in taxes between the grocers (0.2 of a cent per dollar) and the branch houses (0.039 of a cent per dollar) is to be noted; though it is possibly explained in part by the larger ownership of plant on the part of the grocers, an interpretation which might more readily be adopted but for the large item of rent in the grocers' expenses.

After all allowances are made, however, the facts if fully known might well show that on the average a given volume of sales can be made at less expense by the packer than by the wholesale grocer; but even so, the efficiency of the packers in handling nonmeat products is not established. The packers do not keep cost figures for handling specific lines of goods in their branch houses. The cost of handling meats is doubtless lower than that for other lines. The prices at which they sell groceries have frequently caused the jobbers to raise the question whether the packers load their meat with much more than its proper proportion of expense. No statistical information has been secured on this point, but it is clearly implied in a recent statement by the president of Morris & Co. that the jobbers are right in their surmise. He says:

> It is a fact, if that be an offense, that the packers have an efficient means of distribution, and as they already have a fixed carrying charge at their branch houses, additional lines of goods can be carried and sold very cheaply.

This and similar utterances from other packers seem to show that they do not rely upon their efficiency in handling groceries to win for them a footing in the marketing of these foods, but upon the organization built up for marketing products which naturally appeal

for favorable treatment from the carriers and over which they exercise a more or less monopolistic control.

Low prices to the consumer made possible in such ways are not a social advantage, but may readily be made the instrument for securing a dominating control of successive lines of goods, after which it may be confidently expected that such lines will be made to bear at least their proper marketing expense and that prices will be raised accordingly. But aside from that no lowering of price has been found to result from the adventure of the packers, from time to time, into new lines of manufacturing and merchandising. The manufacturers of foods, and of food and other specialties and their purveyors are, generally speaking, determining price levels through competition. As their positions are undermined, monopoly looms.

Section 6.—Continued expansion to be expected.

The reason given by the packers for taking on the merchandising, and, more lately, the manufacture of new lines of goods is that it is done in the interest of efficiency—presumably greater social efficiency. As the number of lines a car-route salesman has to sell is increased his cost per unit of sales is lowered; when for seasonal or other reason there is a falling off in the main lines of business the way is open to keep down costs by pushing the sale of specialties.

It often happens that a packer salesman visiting a town having only one or two meat markets will, by including the groceries, drug stores, and soda fountains in his calls, reach more dealers than any other class of traveling salesmen. The packers seek a better utilization of their branch houses. Having expensive refrigeration for fresh meats, it is in the interest of economy, it is said, to utilize it by keeping it as fully employed as possible.

It may be suggested at this point that it is easy to mistake what is economical for the individual firm for a social economy. For example, if a packer's taking over the cheese business simply means the transfer from a jobber's cold storage, owned or leased, to his own, there may be an increase of the packer's efficiency without any corresponding social economy. Again, it is said that new lines of goods make possible a better utilization of their refrigerator cars, both those in the car-route service and those serving the branch house. The same caution against mistaking an advantage to the firm for one to society, as is indicated above, should be observed at this point also. But upon this matter further discussion will be had in subsequent pages.

Quite aside from the question of social usefulness or benefit or harm to the general business world, it is fully appreciated by the packers that the side lines do perform a useful function in the

packer economy by keeping up the tonnage and helping at weak spots. A circular sent out by Morris & Co. in 1916 to branch-house managers says:

> Our business has ceased to be exclusively a Beef and Pork business. We are the natural distributors of many other products and a Manager or Salesman can't hope to be a real success, unless he sells the full line.

A member of the firm of Swift & Co. wrote the president of the company that its branch house at Spokane was not paying and suggested a means of improving conditions:

> * * * I suppose half his volume is smoked meats; lard, both pure and compound, coming second in volume; sausage, mostly summer sausage, coming third; soup [soap?], produce and Libby's goods making up the balance.
>
> It is costing him about 10% to do business, which looks very high; soap and Libby goods being about the only things he is getting as much as 10% on. Looks as if he will have to handle more specialties if he makes the house pay.

Armour & Co. sent out a circular to branch-house managers and car-route salesmen on July 2, 1918, which indicates the advantage of having a varied line of goods in keeping up tonnage:

> Your business with hotels, clubs, restaurants, dining cars and like institutions is going to show up very badly in view of the recent ruling of the Food Administration in regard to the use of beef cuts, so it is up to you to increase your sales on offal products, also canned vegetables, rolled oats, and our other added lines. No doubt a great many of these institutions will use increased quantities of fresh pork cuts, also hams and bacon and we are not going to accept the Beefless Days as an excuse for decreased volume on hotel business.
>
> Be initiative and go after all the accounts in your territory with added energy and see if you can not keep up your volume.

An officer of Wilson & Co., Inc., recently explained to a canners' association the philosophy of expansion in the following way:

> For years these branch establishments have been operated without profit and some means to absorb these losses through increased volume necessarily had to be found; therefore, the packers first turned to the produce lines—butter, cheese, eggs, poultry—which could be handled to advantage on account of these houses being equipped with refrigerated facilities. Even with these added lines, it was found that the volume yet would not absorb their losses, so canned foods, preserves and condiments, etc., were added, thereby absorbing all the working time of each individual manager and each organization, lowering the cost to operate and largely absorbing the losses that had been going on through these houses.

These extracts seem to be notice that the limit of packer expansion into new fields has not been reached. The "losses" shown for the six branch houses considered in this chapter show how far these establishments are from having "absorbed branch-house losses."

The method of arriving at profit and loss results at the branches makes it possible, if this line of argument is accepted, to justify indefinite expansion. Losses may be shown whenever necessary. Likewise there will always be marginal branch houses like that at Spokane, needing new lines of trade to keep them going; there will always be marginal car routes whose averages will need fattening.

With such a situation continually renewing itself, and with the continuance of the meat-animal industry in a practically stationary condition as it has been during the last few years, the only way of securing continually increasing tonnage will be to embark in new lines of manufacture and selling. If this can be done by virtue of real economy in distribution it would perhaps be staying the wheels of progress arbitrarily to block their path even though the danger of monopoly lay along that path. If, on the other hand, expansion into new fields is in large part due to special privileges, or to external economies which the packers do not create but are able to utilize—it may be, practically monopolize—rather than to internal economies representing the packers' contribution to efficiency, such expansion constitutes a menace to producer, to manufacturer, to merchant, and to consumer.

Moreover, if real economies result from the large scale of the packers' operations, it is all the more imperative that they be stripped of all those advantages which have been gained without adding to the social efficiency in the production and distribution of foods. Such advantages are found most clearly in connection with the transportation facilities which the big packers have in part created and in part secured by concession, voluntary or forced, on the part of the carriers.

Advantages in Transportation Facilities:

(A) The Peddler-Car System.

In other parts of this report[1] there have been set forth the growth and extent of private control of special cars in the transportation system, the extent and geographical distribution of peddler-car routes for the delivery of fresh meats to country towns, the amount of such sales, and the way the ownership of private cars operates to the disadvantage of the small packers in their competition with the big packers. It remains to show how, through such ownership, advantages have been secured which affect others engaged in the manufacture and distribution of perishable foods and of other food and nonfood commodities.

The subject naturally divides itself into two parts, one dealing with the packers' arrangement for the delivery of less-than-carload

[1] Pt. I, pp. 133–154. See also Commission's Report on Private Car-Lines, 1919.

shipments—the so-called peddler-car service; the other with carload shipments, especially to branch houses.

Section 7.—The peddler-car service.

The car-route sales of the great packers (exclusive of Morris & Co., not available) amounted to 775,482,743 pounds of foods during 1916. A relatively small portion of this was delivered by express or other equipment supplied by the carriers; but the bulk of it was delivered to thousands of towns in all sections of the country by refrigerator cars, mostly owned by the packers, in which, whether owned by them or not, they had the exclusive right of shipment. Some evidence was introduced in the peddler-car cases before the Interstate Commerce Commission in 1916, going to show that occasionally goods not belonging to the packer were placed in such cars. But the use of a peddler car is essentially an exclusive use. No complaint of this is made so far as the cars are confined to the carrying of meats; but the practice has grown up, with the expansion of the packer activity in the manufacture and distribution of other lines of food, of shipping such foods in the "meat cars" with the result of securing to the packers a frequency of service and a speed of service in the delivery of these goods which give them an advantage over their competitors, which is in no sense a reflection of their own industrial efficiency. It is the inequitable rules of the carriers which give them this advantage in marketing, and not at all the ability or skill of the packers either as manufacturers or merchants of products other than packing-house products.

General character of the service.—The term "peddler car" had its origin in an early practice of selling meats and other perishable foods from cars en route—a practice no longer followed, so far as the distribution of meat is concerned, though it still persists in some sections in the marketing of other kinds of food as fruit and vegetables.

The contents of the peddler cars of the packers are, in theory at least, sold before loading, are way-billed to the various consignees along the route, and handled at the unloading stations in much the same way that other ordinary less-than-carload shipments of way freight are consigned and handled.

Railroad men often refer to all way cars as peddler cars; but the better usage is to confine the term to those cars assigned for exclusive use, moving under refrigeration, on schedule time for the delivery of perishable foods, and especially fresh meat and packing-house products. In fact, such cars are generally called "meat cars." Railroad-owned cars open to all shippers, though performing the same kind of service, even when they contain shipments from the packing houses, as they often do, are not called peddler cars. The term prop-

erly belongs only to the privately owned or exclusively operated cars,[1] used by the packers for delivery to towns on regular routes.

METHOD OF OPERATION.—The peddler cars are loaded in station order by the packer's employees at the loading docks of the packing house with orders secured by traveling salesmen, through the mail, or otherwise. The contents should be checked, according to the rule, by railway employees. The cars are iced by the packer and when reicing is necessary it is done at his expense. Loaded cars are switched to the interchange tracks of the receiving carriers. If, as is usually the case, the car is not to break bulk until some distance from the point of shipment has been reached, it is put into a train with other cars entitled to expedited service and forwarded to or near the town where the peddling route begins. The train may thus carry several meat cars 200 or 300 miles as time freight, and then be broken up at a division point to go into way-freight trains, each with its one or more meat cars. The consignments to the various stations are unloaded by the railroad employees. The haul for a route car varies greatly in length, from 25 or 30 miles to 900 or more. A typical car route in the central West involves a haul from 250 to 300 miles in length. The number of towns on the peddling route varies from 2 or 3 to 15 or 20 or more. Many towns not reached directly by the packer's car are served by it nevertheless by transshipment at junction points or to points beyond the final destination of the car. From the end of the route the car is hauled back to the plant, usually empty, the packer receiving mileage on the movement of the car both loaded and empty.

SCHEDULED REFRIGERATOR SERVICE.—Somewhat analogous to the extensive car service furnished by each of the big packers for his exclusive use is the scheduled refrigerator service provided by many carriers on some part of their lines for the general public, including the packers who often make use of it. A great variety of perishable freight may be offered by many shippers to be loaded at the

[1] There are a few cases where cars, in all essentials peddlers, are used jointly by two or more packers, but this is unusual. At Omaha three packers ship over the Rock Island in this way. Each packer uses his own refrigerator car for loading at the plant and for delivery at the railroad freight house in Council Bluffs. Here the contents of the three cars are loaded into one car for peddling mainly to points west of Fairbury, Nebr. While there is nothing in the rule to prevent shippers of perishable freight at Omaha from draying it to Council Bluffs for shipment in these cars, it seems that this is not done, and while shipments other than those of the packers are sometimes included, the service provided for these jointly used "line-run" cars is essentially an exclusive packer service. Similar service is provided by other carriers out of Omaha. In the peddler-car cases referred to later a difference of opinion was expressed by carriers and by the packers as to whether the rules permitted the carrier to place other than packer goods in a peddler car, and a few cases were cited where such goods were so placed en route after the car was opened for peddling; but in spite of such occasional use of peddler cars the fact remains that one of the essential features of these cars is their exclusive use by the packer, and there are but few cases where the packers make a joint use of cars such as that found at Omaha. (See Interstate Commerce Commission, I. & S. Docket No. 419, Heinemann's testimony, pp. 231–233.)

railroad freight house by railroad employees. Icing and reicing are done at the carrier's expense. The cars move and their contents are handled in much the same way that peddler cars move and their contents are handled. The cars move on announced days, once, twice, or oftener in the week, according to traffic conditions. In some cases, the cars are run only when a specified tonnage has been offered for shipment.

The freight rate is the same whether shipment is moved in a peddler car or in a railroad scheduled car. In all cases the rate on each consignment is the less-than-carload rate from place of origin to destination. In nearly all cases this is a class rate, though in a limited territory to be noted later peddler-car rates are a percentage of the carload-commodity rates in force. In order, however, for the packer to secure the special service that goes with the exclusive use of the peddler car he gives certain guarantees as to weight or earnings, or both. This guarantee varies with the traffic territory through which the car moves and to some extent with the railroad over which it moves.

Section 8.—The peddler-car rules.

In central freight-association territory the general rule is that the minimum charge per car shall not be less than the carload rate on dressed beef for a minimum weight of 20,000 pounds from original point of shipment to final destination of the car. This merely fixes the minimum charge. The freight is paid on the contents of the car at the L. C. L. rates and in most cases this amounts to more than the minimum charge. If the shipper is not able to load his car in such a way as to make it earn this minimum at L. C. L. rates he must pay the difference in the form of what he calls a "penalty," and the carrier calls a "deficit" charge. Whatever the name given to the charge it simply measures the extent by which the packers fall short of the conditions fixed by the carriers for the special privileges granted in the rule. The operation of this, one of the simplest of the peddler-car rules, is illustrated in the following table showing the weight, charges, penalty, and dressed-beef rate on certain cars shipped from Chicago over the Michigan Central during July, 1916.[1]

[1] Compiled from I. & S. Docket No. 867, I. C. C., Rowley's Exhibit No. 1 (1916).

TABLE 11.—*Operation of peddler-car rule in central freight-association territory; examples of charges and penalties collected, July, 1916.*

Weight.	Charges, at less-than-carload rates on each shipment, Chicago to destination.	Penalty.	The carload-dressed-beef rate, Chicago to final destination of car, per cwt.
23,410	$49.28	.....	$0.21
12,135	36.50	$5.50	.21
31,148	62.94	.....	.21
11,916	50.92	12.08	.315
9,159	19.28	21.72	.205
8,466	28.95	13.05	.21
18,275	35.84	.....	.168
15,652	39.04	2.96	.21
20,496	34.07	.....	.168

It will be noted that a penalty was paid on the second car in the table. The earnings on the various consignments amounted to only $36.50, while the minimum charge at 21 cents per hundred on 20,000 pounds was $42. The difference had to be made up. It may happen that a car with less than 20,000 pounds will earn more than the minimum charge, as in the case of the seventh car; and on the other hand a car carrying mostly low-class freight and unloading rapidly on the early part of the route may yet have to pay a "penalty" charge. A large proportion of the peddler cars in this territory pay such charges. The total number of peddler cars handled out of Chicago during the month of July, 1918, by the Michigan Central was 73, with an average loading of 17,199 pounds, 37 of which paid a penalty charge. During the same month the Pennsylvania Co. moved 28 peddler cars, with an average loading of 13,836 pounds, an average distance of 303 miles, and collected a "penalty" on 17 of them.

The operation of the rule is further illustrated by the following table showing penalties paid on peddler cars in central freight-association territory by Swift & Co. and its subsidiaries for the months of January, March, and May, 1916.[1]

TABLE 12.—*Operation of peddler-car rule in central freight-association territory; proportion of Swift & Co.'s cars paying penalties January, March, and May, 1916.*

Location of plant.	Total peddler cars operated for 3 months.	Number of cars paying penalties.	Percentage of cars paying penalties.	Total penalties paid.	Average penalty per car.
G. H. Hammond Co., Chicago, Ill.	419	267	55.9	$2,769.06	$10.36
Swift & Co., Chicago, Ill.	754	193	26.2	1,560.81	8.08
Swift & Co., East St. Louis, Ill.	137	73	53.2	917.12	12.55
Plankinton Packing Co., Milwaukee, Wis.	37	11	29.7	60.34	5.48
	1,347	544	40.3	5,307.33	9.75

[1] I. & S. Docket No. 867, I. C. C., Owen's Exhibit No. 2.

WESTERN TRUNK-LINE RULE.—In western trunk-line territory the general rule is that peddler cars will not be accepted unless they contain 10,000 pounds or more of freight, which must be made up of fresh meats, packing-house products, as defined in the rules, and certain other enumerated commodities. If the actual tonnage of 10,000 pounds is not loaded the railroad collects freight on the deficit in weight at the fourth-class rate to the first station for which the car contains a shipment. Provision is also made that "the total freight charges for the movement of such cars must not be less than the charge for 10,000 pounds, at the fourth-class rate from the point of shipment to final destination of the car."[1]

This rule provides for a so-called "double minimum"—a minimum revenue and a minimum weight. Under it the packer does not find it difficult to load his cars in such a way as to make them earn the minimum revenue. If a fair proportion of the load is fresh beef, which in this territory moves at first-class rate, the car may be loaded far short of 10,000 pounds and yet earn far more than the minimum revenue. In such cases, however, there is a "penalty" charge due to the weight minimum. The operation of the rule will be seen from the following table, showing the weight loaded, the minimum charge, the actual revenue earned, and the "deficit on account of minimum weight" as to certain cars shipped by Morris & Co. from Chicago during the early part of 1914.[2]

TABLE 13.—*Operation of the peddler-car rule in western trunk-line territory; examples of load, minimum charge, earnings, and deficit or penalty charge for Illinois and Wisconsin points.*

Break bulk point.	Car made empty.	Minimum weight.	Actual weight loaded.	Minimum charge.	Actual revenue earned.	Deficit account of weight.
Oconto, Wis.	Daggat, Mich.	10,000	7,263	$25.00	$57.61	$6.30
Evanston, Ill.	Zion City, Ill.	10,000	7,099	10.90	13.15	1.58
Dwight, Ill.	Lincoln, Ill.	10,000	9,686	18.20	29.79	.41
Dixon, Ill.	Sterling, Ill.	10,000	7,781	15.60	26.56	3.34
Geneva, Ill.	Rochelle, Ill.	10,000	8,088	13.20	19.55	2.01
Oconto, Wis.	Daggat, Mich.	10,000	7,656	25.00	34.18	5.39
Waukegan, Ill.	Kenosha, Wis.	10,000	7,299	12.00	14.91	2.83

The "penalty," while usually not heavy, has, under traffic conditions existing in western trunk-line territory, to be paid in a large number of cases. In the case cited Armour & Co. testified that they paid it on about 25 per cent of their peddler cars shipped in this territory; Swift & Co. paid on from 20 to 25 per cent; the smaller packers, even among the Big Five, pay on from 30 to 35 per cent of their cars. On the whole, taking into account the sparser popula-

[1] Boyd's W. T. L. Circular No. 12–C., I. C. C., No. A–656.

[2] Rules governing shipments of packing-house products and other freight shipped in peddler cars. I. & S. Docket No. 419, I. C. C., Heinemann's Exhibit No. 5.

tion, longer distances, and lower meat consumption in western trunk-line territory as compared with central freight-association territory, the conditions as to guarantee are more favorable to the packer in the former territory than in the latter. In both regions it is held by the Interstate Commerce Commission, in the two cases cited above, that the peddler-car service was, under existing rules, remunerative to the railroads. In each case the carriers had attempted to increase the minimum charge for the service, and in each case the Interstate Commerce Commission held that the change had not been justified.

PEDDLER-CAR RULE IN OTHER TERRITORIES.—The general peddler-car rule in southern classification territory provides for a minimum weight of 12,000 pounds, made up of "less carload shipments of packing-house products" or "less carload shipments of packing-house and other commodities," to be carried at the regular class rates, and the deficit in weight to be charged for at L. C. L. rate on packing-house products, generally fourth class, to the point where the car breaks bulk. The Louisville & Nashville rule provides for a 10,000-pound minimum of "packing-house products, fresh meats, and other commodities shipped by packing houses," and the deficit in weight is charged for at the fresh-meat rate to the point where the car breaks bulk. The Southern Railway Co. and some others in this territory have a rule similar to that of the Louisville & Nashville Railroad.[1]

The carriers in trans-Missouri territory follow the general rule of the western trunk lines.[2]

In southwestern lines territory peddler cars move under two quite different plans. The older rule is similar to that in force in western trunk-line territory described above, providing for both a minimum weight and a minimum charge. A second plan was established by the Interstate Commerce Commission in 1912,[3] intended to apply primarily to Wichita, Fort Worth, and Oklahoma City, from which no peddler-car routes had down to that time been established. The order was that such routes should be established and that the rates should be 130 per cent in the case of packing-house products and 150 per cent in the case of fresh meats of the carload rates on these commodities to their several destinations. These products moved in this territory in carloads under very favorable commodity-mileage rates, and it thus came about that the peddler-car traffic shared in these favorable rates, not only from these new packing centers but from Kansas City and East St. Louis also, as to the traffic destined to points in Arkansas and Louisiana and other southwest territory.[4]

[1] See Exhibit V–A and V–B for a statement of the peddler-car routes operated over the Southern Railway Co.'s lines in 1918.

[2] Boyd's, I. C. C. No. A–786, Items 1430–C and 1440–C.

[3] In the matter of the investigation of advance rates by carriers for the transportation of packing-house products, 23 I. C. C., 656; I. & S. Docket No. 548, Leland's testimony.

[4] F. A. Leland's testimony, I. & S. Docket No. 548.

The carriers prescribed for cars moving under this plan a minimum charge equal to the charge for 10,000 pounds of fresh meat at the L. C. L. distance-commodity rate.

The following table shows the operation of the rule upon the cars moving out of the cities named in March, 1916, under the commodity-mileage-percentage-rate plan:[1]

TABLE 14.—*Operation of the percentage-peddler-car rule in southwestern lines territory during the month of March, 1916.*

		Fort Worth-Dallas.	Oklahoma City.	Wichita.	Kansas City.	St. Louis.	Average.
1	Number of cars	34	17	46	116	50	53
2	Stops (average number)	9	10	13	14	14	12
3	Average loading	11,221	13,308	11,699	12,931	16,604	13,153
4	Average revenue per car	$50.23	$79.47	$59.15	$75.03	$88.54	$70.48
5	Number of cars paying minimum	15	4	28	61	12	24
6	Per cent of cars paying minimum	44.1	23.5	60.9	52.6	24.0	45.3
7	Average miles run	227	387	375	466	420	375
8	Average revenue if L. C. L. class rates had been charged	$73.08	$104.55	$82.48	$81.17	$104.24	$89.10

An important effect of this percentage arrangement was to create the discrimination in rates as between shippers in peddler cars and other shippers described in the next section.

Section 9.—How the system works.

The value of the service performed by the peddler car is generally recognized. It is important to the packing industry. The service is not only one of the concomitants of concentration in that industry, but one of its causes, and it is vital to the maintenance of concentration. One incident in the growth of centralization has been the practical disappearance of the local slaughtering plant, and with its elimination communities everywhere are dependent upon the regular refrigerator service. It is held to be profitable to the railroads. The carriers have generally been ready to haul peddler cars over the routes prescribed by the packers. Where they have not been willing, the Interstate Commerce Commission, recognizing the need of the service, has in recent years, several times, ordered the carriers to establish routes.[2] The rates and conditions under which the service is performed make the business remunerative for the carriers. Several cases where the carriers have sought to increase their earnings by changes in rate or in the minimum requirements have been before the Commission since 1914 and have been decided against the carriers.[3] In all these cases the peddler-car system has been dealt with purely as though the only interests involved were those of the packer and those of the carrier; any arrangement

[1] Leland's Exhibit No. 11, I. & S. Docket No. 548.
[2] 23 I. C. C., 656 (1912); 48 I. C. C., 525 (1918).
[3] 32 I. C. C., 428 (1914); 36 I. C. C., 62 (1915); 43 I. C. C., 139 (1917).

that was mutually satisfactory to these parties was, in the absence of complainants, regarded as fair to everybody.

UNEQUAL OPERATION OF THE RULES AS BETWEEN LARGE AND SMALL PACKERS.—The system does not work equitably as between the big packer and the small packer. In *Rules Governing Shipments of Packing-House Products and Other Freight Shipped in Peddler Cars* (32 I. C. C. 428) it developed that the two largest packers were not averse to an increase in the minimum weight from 10,000 to 12,000 pounds, provided all limits on the kind of goods to be included were removed. It was the smaller members of the Big Five group who protested. Morris & Co. in its protest said:

> This concern handles but very little of the so-called contraband freight in these peddler cars, our shipments consisting almost exclusively of fresh meats, butterine, mincemeat, lard and cured packing-house products. We are at present experiencing a great deal of difficulty in loading to the required minimum of 10,000 pounds, by reason of the severe competition on this class of traffic, and to place a further burden of 2,000 pounds per car will undoubtedly serve to drive all except the strongest shippers out of this line of business.

The Cudahy Packing Co. testified that that company would gain but little if any by being permitted to include "other goods" in the weight minimum. The small packers did not appear in the case, but it is evident that they must find it more difficult to load to the increased minimum than Morris & Co. This point was illustrated in the peddler-car minimum case arising in central freight-association territory in 1917 (43 I. C. C. 139). There it was proposed to increase the weight upon which the minimum revenue was to be computed from 20,000 to 21,000 pounds. The Cleveland Provision Co. joined in the protest against the increase. This company in 1916 operated 15 car routes, served 75 towns, and marketed by these routes 8,000,000 pounds of products. From the testimony in this case it was shown that the average loading during the month of July, 1916, on cars moving out of Chicago for this territory over the Michigan Central was 17,199 pounds, and on the Pennsylvania 13,836 pounds, while the average loading of the Cleveland Provision Co. during a period of 15 weeks was 9,964 pounds, and on four of its routes the average was less than 8,200 pounds. Armour & Co. presented figures to show that from August, 1915, to July, 1916, inclusive, 152 of its cars out of a total of about 5,000 shipped to this territory in a year paid "penalties" amounting to $1,806.52, while the Cleveland Provision Co.'s exhibit showed that it paid an average of over $12,000 a year in "penalties," though shipping probably not more than a quarter the number of cars shipped by Armour & Co. The small average load was explained by the fact that out of a total of some 32 articles commonly shipped by the big packers in peddler cars the Cleveland Company shipped only 7.

It can safely be deduced that the larger the packing company the greater the ease, other things being equal, with which it can meet the guaranties required by the carriers. Mere size is an advantage in utilizing the peddler car.

How the peddler-car service affects other shippers of food.—The packer can have a refrigerator service over a way-freight route whenever he has a tonnage that warrants his undertaking to meet the railroad requirements as to minimum weight or minimum earnings. The grocer requires refrigerator service six or seven months in the year for marketing certain perishable foods. He is dependent on the cars provided by the carriers. Two kinds of service are open to him—(*a*) a service similar to that provided by the packers for shippers who can guarantee a specified load and (*b*) the service of the regular-scheduled refrigerator cars.

The western trunk-line rule[1] will illustrate the conditions under which the first form of service will be provided. Carriers in this territory announce that they will furnish, upon reasonable notice, or allow shippers to use, refrigerator or insulated cars, with or without refrigeration, for loading by one shipper at one station with freight to be transported at less-than-carload rates. The charges on such cars are at less-than-carload rates on each article to point of destination, but the minimum charge is 15,000 pounds at the fourth-class rate, and should the weight be less than 15,000 pounds the deficit is waybilled at fourth class to the destination where unloading begins. Icing and reicing are at the carrier's expense. This rule does not apply to peddler cars loaded with fresh meats and packing-house products. The packers would not, however, be likely to use it, since the minimum charge is 50 per cent higher than the peddler-car rule in this territory provides for. It is obvious, moreover, that this service can be used only occasionally by even the largest wholesale grocer or provision house.

It is upon the scheduled refrigerator service that the grocers and shippers other than the packers must mainly depend for shipping perishables. Many, but by no means all, carriers announce the service between certain points upon their lines. The widespread, almost universal complaint, however, is that it is less frequent and that it reaches a smaller number of towns than the packer-car service does. Moreover, any packer may, and does, make use of the railroad refrigerator service upon which the grocer solely depends for shipping on days his own car does not move. This cause, it is held, is alone sufficient to account for the successful competition of the packers in the handling of such commodities as butter, cheese, and eggs. During a considerable part of the year, both winter and sum-

[1] Boyd's Circular No. 12-F, for the western trunk lines, I. C. C. No. A-821, Item 450.

mer, these require refrigeration. The packers with their more frequent and regular service take the orders the grocers or produce dealers can not fill at the required time.

This inequality extends to the marketing of nonperishable foods. These, too, may be shipped in peddler cars, under cover of a service that has been created for marketing fresh meats.

"CONTRABAND" SHIPMENTS; PROVISIONS AS TO "OTHER ARTICLES" IN THE GENERAL RULES.—Attention is again called to the provisions in the peddler-car rules relative to the contents of the cars. In western trunk-line territory the minimum weight of 10,000 pounds must be made up of fresh meats, packing-house products as defined by the rules, and butterine, dressed poultry, mincemeat, neat's-foot oil, lard oil, and tallow oil. But this does not mean that only these enumerated commodities can be loaded in the cars. It has long been the practice to ship other commodities in peddler cars as "contraband," paying on them, of course, the regular L. C. L. rates, with the understanding that their weight could not be included in the required minimum weight.

It seems that as the rule formerly stood it was open to question whether the earnings on "contraband" could be counted toward making up the minimum charge, but as it was amended in 1916 such "contraband" shipments are not permitted under the general rule in this territory to count toward either the minimum weight or the minimum charge. And yet the privilege of sending them is an immense advantage to the packer and a corresponding disadvantage to other dealers in foods. The packer's salesman can assure the country dealer that the "meat car" will arrive at his door on a given day at a given hour and that an order placed for rice or coffee or dried beans will reach him with the same promptness and certitude that his meat does. Efficient management on the part of the jobber can not permanently overcome the handicap under which such a service places him.

In southwestern lines territory the general rule as to "contraband" is similar to that of the western trunk lines. In 1915 the carriers filed certain changes in the rule which, but for their suspension, would have had the effect of increasing the charges, but at the same time giving the shippers the privilege of loading "other articles" not requiring refrigeration in peddler cars up to 25 per cent of the total weight loaded. This only means that the weight of these "other articles" and the earnings upon them would have been counted toward making up the required minima, for they always have been and are now allowed to be carried as "contraband."

In southern territory the rules allow the shipment of fresh meats, packing-house products, "and other commodities shipped by pack-

ing houses," which is as liberal a rule as the packers could ask for. In central freight-association territory the general rule provides for a relatively high minimum charge and places no limitation whatever on the kind of goods that may be carried, and they all count toward making up the minimum charge.

"CONTRABAND" PROVISIONS IN OTHER RULES.—So much for the general rules as to contraband in force in different sections of the country. But there are many exceptions to these rules in every territory. The Toledo, St. Louis & Western Railroad Co., for example, has a rule applicable to shipments from St. Louis and East St. Louis to certain specified destinations which permits the loading of fresh meats, packing-house products, "and other articles forwarded from packing houses in refrigerator cars," and all count toward the minimum, which in this case is a fixed amount per car.

A joint tariff applicable on several Texas roads permits the loading of any "other articles" and the charges on them are included in the minimum charge.[1] The Baltimore & Ohio has a rule[2] applicable to shipments from East St. Louis to specified destinations on its line, the Chesapeake & Ohio, and the Big Four. It permits the inclusion of dressed poultry, eggs, butter, and cheese, which do not in central freight-association territory have any carload rating, "and other articles taking less than carload commodity or class rates," the earnings on which are included in the minimum charge, under this rule a lump sum for each group of towns named in the rule. These examples illustrate the numerous variations from the general rules found in the exceptions of individual carriers or groups of carriers, not only in respect to "contraband," but in other features of peddler-car traffic.

The aim of the packers is to secure the removal of all restrictions on what they may include in their peddler cars, and to have all commodities count toward making up the required minima. Mr. Cornwall, testifying for The Cudahy Packing Co., in the western trunk-line peddler-car case, expressed the view that there should never have been any restriction on the contents of peddler cars:

> If you put refrigerator freight in a car and you pay for the icing and reicing, I can not see that it makes any difference to the carriers if we put something in there that does not require refrigeration. It is better for the carriers. They have heavier loading, and it forces less penalties on us, and in a spirit of fairness, I think the carriers ought to grant that we can load anything in there that we ship.

The same view was expressed in the Southwestern case by a representative of Swift & Co., who testified before the Interstate Commerce Commission as follows:

[1] Fondas' Texas Line tariff, No. 2–C, I. C. C. 51, Item 3160.
[2] I. C. C. No. W. L. 7836.

Mr. FREDERICK: We have been for a long time trying to persuade the Western Trunk Lines to open up and have the charges applying on these so-called contraband articles make up the minimum, the same as they do in other territory, for example, in Central Freight Association Territory, and down in Oklahoma on State business down there. We never were successful until the question came up of the 15,000 pounds minimum. We conferred with the railroads, with other packers, we conferred with the railroads individually and personally argued the thing backward and forward.

Finally the proposition was made by several of the carriers that we make the minimum 12,000 pounds, and allow these so-called contraband articles to apply to make up the minimum. That sounded all right to us. We said if they would publish such a tariff as that, that we would not protest against the advance of the minimum. * * * We are probably better able to stand that minimum than anybody else, by reason of the large so-called contraband tonnage we handle. * * *

Examiner BROWN: You can go to the local merchant and you can offer him something in about everything he sells?

Mr. FREDERICK: Yes, Sir.

Examiner BROWN: Is that the idea?

Mr. FREDERICK: Yes Sir; and there is no man too small for us to trade with and no hamlet too small for us to stop at and say how do you do. * * *

Mr. BOYLE: So that the thing that you are chiefly concerned with is getting into the tariff, or into the rule, some provision that will allow you to take account of the contraband freight in arriving at your minimum per car earnings or minimum weight.

Mr. FREDERICK: That is correct.[1]

It will thus be seen that the tendency has been to give greater and greater freedom to the packers in the matter of including nonmeat products, and it seems clear from evidence, of which Mr. Frederick's testimony is a sample, that their aim is to have the rules so changed that all restrictions on the character of the contents of their cars shall be removed.

DISCRIMINATION IN RATES.—As pointed out in previous pages the peddler-car rates are generally the same as those paid on less-than-carload shipments by other shippers. The peculiar situation in southwestern territory already referred to has, however, given rise to rate discriminations in that region in favor of peddler-car shipments of certain articles classed as packing-house products. This situation rose in 1912 when the Interstate Commerce Commission ordered the carriers to establish a peddler-car service, with a minimum weight of 10,000 pounds and with less-than-carload rates on fresh meats equal to 150 per cent and on packing-house products at less-than-carload rates equal to 130 per cent of the existing carload rates.

This arrangement gave to packing-house products a flat rate when shipped in peddler cars lower than the rate on the individual articles making up the list. Most of these articles are rated at fourth

[1] Stenographic notes in I. & S. docket No. 419, pp. 396–401.

class, some at third class, and a few at second class. The packing-house-products rate is substantially lower than the class rates which apply on other than peddler-car shipments of these products.[1] The table which follows shows for selected distances what this difference is:

TABLE 15.—*Relative rates on packing-house products when shipped under the peddler-car rule in certain southwestern territory and class rates for the same distances, in cents per 100 pounds, on single-line traffic.*

OKLAHOMA INTRASTATE TRAFFIC.

Distance (miles).	Peddler-car rate on packing-house products.	Class and rate.			
		2	3	4	5
25	17.5	28	23	20	16
50	23	37	30	26	20
100	32	49	41	35	27
200	43.5	75	62	53	41
300	54.5	95	78	67	53

TEXAS INTRASTATE TRAFFIC.

25	14	31.5	25	21.5	17.5
50	20	39	32.5	27.5	22
100	29	54.5	45	39	30.5
200	40	82	67.5	57.5	46.5
300	50	97.5	80.5	69	55

The list of packing-house products is very variable and can be changed at the will of the carrier. Many of these products are handled by distributors of food who do not operate peddler cars. The disadvantage of such distributors is indicated by the comparative figures given above. What that disadvantage is, is made more concrete by showing the difference in rates on specific commodities they handle. Following are the less-than-carload class rates on a few commodities from Fort Worth, Tex., to Shreveport, La.:

	Cents per 100 pounds.
Chili con carne	104.
Cotton-seed cooking oil	72.5
Canned meats with vegetable ingredients	62.5
Dried meats	62.5
Lard substitutes	62.5
Mincemeat	62.5
Sausage	72.5

All these articles are included in the list of packing-house products which may be shipped in peddler cars between these points, and when so shipped pay a flat rate of 42.5 cents. In the same way these commodities have a peddler-car rate of 55 cents from Oklahoma City, another packing-house center, to Temple, Tex., while shipments under

[1] That this arrangement gives rise to discrimination between shippers and between places is recognized by the carriers. See F. A. Leland's testimony in I. C. C. I. & S. docket No. 548 (1915), stenographic notes, pp. 17 and 269.

the class rates pay 72.5 cents on mincemeat, canned soups, canned meats with vegetable ingredients, and lard substitutes, 85 cents on sausage and cotton-seed cooking oil, and 121.5 cents on chili con carne.

These rate discriminations have grown up under peculiar circumstances and are confined to southwestern territory. But there are discriminations of another kind growing out of the peddler-car arrangement quite generally felt throughout the country and becoming more acutely felt as the packers make larger and larger use of the peddler cars as an instrument in aid of their invasion of the fields of manufacture and distribution of nonperishable products.

DISCRIMINATION IN SERVICE.—The practical advantages to the packers of shipping nonperishable foods in peddler cars are obvious. A car loaded at Kansas City to break bulk at Thayer, Mo., for peddling to Jonesboro, Ark., containing dried beans, dried fruit, rice, rolled oats, corn flakes, prepared mustard, and coffee, along with perishable foods, reaches Thayer in 25 hours and 30 minutes, leaves Thayer 33 hours and 15 minutes, and arrives at Jonesboro 40 hours and 30 minutes from Kansas City. Box-car shipments may reach Thayer by the same through freight train which carries the meat car, but, according to information furnished by the Federal manager of the St. Louis-San Francisco Railroad, "L. C. L. freight loaded in an ordinary box car requires approximately 65 hours from Kansas City to points Thayer to Jonesboro," as against, say, 34 to 40 hours, for peddler-car shipments.

A car loaded by Armour & Co., in May, 1919, contained the following commodities generally handled by jobbers:

240 pounds evaporated milk.
230 pounds family cereal.
16 pounds corn flakes.
50 pounds coffee.
300 pounds butterine.
10 pounds butter.
63 pounds cheese.
12 pounds condiments.
240 pounds canned meats..
60 pounds sauerkraut.

These shipments went through to their destination under the rules for handling "meat cars." A Chicago jobber in delivering the same goods would have been dependent for shipping the items requiring refrigeration upon the scheduled service provided by the railroads, with the chances against him of reaching the towns reached by the packer's car. The nonperishable part of the shipment, if sent by a jobber, would be subject to all the numerous and serious delays incident to the movement of ordinary freight.

One prolific cause of delay in the movement of less-than-carload shipments is the need of reworking en route. This involves damage and deterioration in the goods and an inevitable, and sometimes prolonged, delay. Perhaps the most serious aspect of the situation is the element of uncertainty as to when such freight will reach its destination. Peddler cars are not subject to such reworking, though part of their contents are frequently transshipped at junction points or for shipment beyond the final destination of the car.[1]

Under such circumstances car-route salesmen do not have to offer groceries at a lower price than the wholesalers do to secure the trade; other things being equal, they can make sales because of the superior service they can assure in the form of frequent and prompt deliveries. Trade won in this way is not to be credited to the industrial efficiency of the packers, but to privileges granted them by the carriers, and to this alone.

(B) Carload Shipments and the Mixing Rules.

Section 10.—Unequal car service.

It is not through the peddler-car system alone that the packers enjoy a transportation service superior to that of their competitors in the distribution of foods. They enjoy advantages also in shipping the far more important part of their traffic, which moves under carload rates. These advantages arise in part from inequalities in the supply of refrigerator cars and in the methods of operating such cars and in part to the special mixing rules under which the packers secure carload rates.

Inadequate supply of cars.—It is complained that shippers requiring refrigerator cars for carload shipment can not secure them at times when the packers seem to have plenty of cars, and that the trade of the small shipper is thus circumscribed. An example of this is found among the wholesale dealers in provisions in New York City during the last few years in connection with the handling of imports of fresh meats from Australia and South America. Because of an inadequate supply of cars for shipment to the interior, the sales of these importers were largely confined to New York City and vicinity. Some shipments were made to the interior, some of them in packers' cars; but in the case of one importer 65 per cent and in case of another 90 per cent of the imports were consumed in greater New York. The imports of these shippers frequently arrived on the same ship with those of the big packers. If there were enough refrigerator cars for all shippers, the small importer might be accommodated; when there was a shortage, the packers' imports were taken care of first. It was not infrequently the case that the small

[1] See Exhibit V, showing the car routes on the Southern Railway for illustration of these peddler-car shipments beyond final destination of the car.

dealer would have cars taken away from him after they had been placed alongside for his use.[1] Importers of canned meats suffer under the same handicap; they, like the importers of fresh meat, can not rely upon a regular and adequate supply of cars, while their largest competitors can.

In the Frankfeld case the Interstate Commerce Commission, while asserting that "it would be difficult to name a more direct or effective method of discrimination than that of preference in providing equipment or in distributing it among shippers," did not feel warranted, in view of the uncertainty of traffic conditions existing at the time, in requiring the carriers to provide the special equipment requested for the transportation of chilled meats. But the facts as to unequal service for different shippers were not denied, and they were made the basis of a strong dissenting opinion by Commissioner McChord, in which he said:

> The defendants not only hold themselves out to carry dressed meats generally, but specifically publish carload ratings on frozen and chilled Argentina meat west bound from ship side at New York. Holding themselves out as common carriers of dressed meat, the common law charges them with the duty of providing safe and suitable equipment in which to transport this commodity. * * * There is no duty upon a shipper under the act or at common law to furnish the car in which his commodity must be shipped. The holding out of the defendants in their tariffs is not limited to the transportation of dressed meats loaded in cars belonging to shippers. For the defendants to publish rates applicable only to the movement in cars furnished by shippers would undoubtedly be unlawful discrimination under the principle of the *Train Lot Rate Cases* (*Anaconda Copper Mining Co.* v. *C. & E. R. R. Co., 19 I. C. C., 592, 596; Wells Lumber Co.* v. *C., M. & St. P. Ry. Co., 38 I. C. C., 464*), because only certain of the larger shippers could avail themselves of the transportation, and the ordinary shipper, who does not own cars, would not be able to compete with them. This discrimination, however, is accomplished as a result of the conclusion reached in the majority opinion. Although holding themselves out unqualifiedly in their tariffs as common carriers of dressed meat, the decision in this case in effect excuses these defendants from the discharge of their duty as common carriers to transport shipments of dressed meat offered by complainants. At the same time the rates are permitted to remain in effect, making it possible for the larger American meat packers, who own their own cars, to import frozen and chilled meats from Argentina and to secure markets for those meats at which complainants can not compete. Thus the decision in this case permits indirectly a result which the parties themselves could not lawfully accomplish.

It is contended by the packers that they, too, frequently want more cars than they can get. But it is to be remembered that they own and absolutely control all the cars suitable for the transportation of frozen meats and a large proportion of those suitable for shipping chilled meats, while because of the important position they occupy as shippers, they also have more than an equal chance at the equipment

[1] B. Frankfeld & Co. *v.* New York Central Railroad Co. et al., 40 I. C. C., pp. 555–556 (1916). This case was decided while the Paraffin case, in which the Supreme Court held that the Commission had no power to compel the carriers to supply an adequate number of tank cars, was still pending.

belonging to the carriers. When the packers suffer from a shortage of cars, it may be assumed that there is a shortage for their competitors as well, while the contrary does not hold true. Whoever undertakes to ship goods requiring refrigeration must do so under all the restrictions implied by these conditions.

SLOW MOVEMENT OF CARS.—As has been pointed out in the Commission's Private Car Report, the big packers maintain a force of men at junctions and other strategic points whose business it is to see that the cars of their employers are kept moving and that they are not diverted to uses other than those of the packer. The small shipper operating a few cars, or one dependent on cars supplied by the carrier, can not afford to keep men on the road to perform this service; they must rely upon that furnished by the carrier. The result has long been an inferior service for the small shipper. The Interstate Commerce Commission has recognized this as a violation of the principle of equal treatment. The failure to return cars to small shippers is due, says the Commission, to the "neglect of a lawful duty by carriers. The obligation to treat each shipper fairly, no matter how small his shipments may be in comparison with those of another shipper, is one carriers can not escape."[1] The Commission suggests in the case just cited that "if the carriers were required to publish in their tariffs a rule to the effect that private cars when unloaded at destination, unless otherwise ordered by an owner or lessee, will be promptly transported, loaded or empty, in the direction of the plant of the owner or lessee, doubtless much of the apparent injustice hereinbefore referred to would be avoided." But it is not at all certain that the publication of such a rule would remove the inequality of which complaints are made so long as the large shippers keep their agents at strategic points to expedite the movement of their cars while the cars of the small shipper are left to take their chances under the operation of a rule executed by railroad employees.

INADEQUATE ICING IN TRANSIT.—Another way in which inequality of service is produced by the packers' transportation arrangements is found in the icing service. The fact that the smaller private-car owners or lessees and even shippers in refrigerator cars owned and operated by the railroads have had to rely upon the large owners of refrigerator cars for icing service has long been a cause of complaint. Many of the old abuses have been eliminated or checked by the regulation of charges exercised by the Interstate Commerce Commission under authority granted by the Hepburn Act, 1906; but only now are the icing plants hitherto operated by the large private-car owners being taken over by the railroads in accordance with a recent finding of the Commission in the private-car case[2] above referred to.

[1] In the matter of Private Cars, 50 I. C. C., pp. 691, 692 (1918).
[2] 50 I. C. C., p. 709.

"The carriers only," says the Commission, "should perform the service of reicing and making charges therefor, and that shippers of these products should not be permitted to perform the service of reicing their own and competitors' shipments en route, either directly or through corporations controlled by them." In the interest of fairness and equality it is obvious that this much should be done; but it will not eliminate inequality of service so long as the large owners of refrigerator cars are permitted to supervise or inspect the icing of their own cars, even at railroad-owned icing stations, while leaving to railroad employees all discretion in the icing of their competitors' cars. Such gratuitous service for the large shippers' cars is more than likely to lead to neglect by railroad employees of the relatively small number of cars belonging to the small shippers; and it seems that the only way to secure equality of treatment in the matter of reicing and in the expedition with which cars are returned, is to make the carriers responsible for handling in the same way the refrigerator cars of all shippers, and for performing all the services connected with the movement of perishable freight. This would give practical assurance that the influence of the most powerful shippers of perishable freight would be enlisted to secure the improvement of the carriers' service, an improvement in which all shippers would share alike.[1]

Section 11.—Inequality through special mixing rules.

A far more prolific cause of complaint by wholesalers and jobbers of food products is that under cover of liberal mixing rules designed to encourage the shipment of fresh meats the packers have secured an undue advantage over them in the distribution of other foods in carloads. Mixing rules are published by the carriers for the purpose of giving to shippers and dealers who can not meet the rigid requirements as to minimum weight for straight carloads an opportunity to ship in the same car a variety of commodities ostensibly of the same general nature in less-than-carload quantities at carload rates. The three important things to be considered in all mixing rules are: What may be included in the mixture; what shall be the weight necessary to make a carload; and what rate or rates shall be applied. Such rules vary with the traffic territory in which the freight moves and, by means of "exceptions," to a certain extent with the carrier within a given territory. There are mixing rules for grain products, for iron and steel products, etc.; and it is under such rules that fresh meats and packing-house products largely move in carloads. In view of the widespread complaint against the operation of these rules among distributors of foods, an examination of their chief provisions seems necessary.

[1] For a fuller treatment of this topic and the one which precedes it, see the Federal Trade Commission's Report on Private Car Lines.

THE OFFICIAL CLASSIFICATION MIXING RULE.—The most important territory to be considered from the point of view both of liberality of the mixing rules and of the volume of traffic is that covered by the official classification.[1] The general rule, Rule 10, for mixed cars in this territory, like the carload rule elsewhere, requires that the shipment shall be at one time by one consignor to one consignee and one destination. The rule is very generous so far as the articles that may be included are concerned. There is practically no limitation on what may be included in the mixture. The two important things to be determined in shipping the mixed carload are the rate to be applied and the minimum weight of the load. Rule 10 provides for charging the highest carload rate applicable to any article in the mixture. The determination of the important matter of the minimum weight is not so simple. If all the articles take the same class or rate in carloads, the minimum carload is the highest provided for any of the articles; if the articles included take different classes or rates in carloads, the minimum carload weight is the highest provided for any article taking the highest carload class or rate, provided the weight of such article is 10 per cent or more of the weight of the articles taking the highest carload class or rate. If they constitute less than 10 per cent of the weight of the highest minimum carload weight provided for such articles, they are not entitled to be in the mixture and are charged separately at their less-than-carload rates. There is also a provision, common to all mixing rules, giving the shipper the option of paying the carload rate on one or more of the highest-rated articles included in the mixture and less-than-carload rates on the remainder if his total charge is thus reduced.

It will be noted that the plan of the general rule is to apply a common rate—the highest carload rate represented in the shipment—to the whole load, and that there is a virtual guaranty of revenue by fixing a minimum weight for the carload. The special rules made by the carriers by way of exceptions to the official classification for fresh meats and packing-house products are framed on a different plan.[2] They permit a variety of mixtures of products handled by the packers, and they fix definitely the minimum carload for each mixture while each class in the mixture takes its own rate, instead of there being a common rate for the whole load as under the general rule.

(1) *Packing-house products.*—Rule 1 provides for mixing "packing-house products." This term is by no means exact in its general

[1] This territory lies, roughly, north of the Ohio and the Potomac Rivers and east of Chicago and St. Louis.

[2] The rules described below are those issued by the Pennsylvania R. R. in its Special Rulings, etc., as I. C. C. P. 1180, Items 2040 to 2055. Similar rules are issued by other roads in this territory, as by the Baltimore & Ohio in its Exceptions to Official Classification, I. C. C. No. 15273, Items 538 and 539. The rule numbers are those of the Pennsylvania issue, I. C. C. P. 1180.

application, but as used in any particular rule it applies to certain specified products packed in specified ways. In this rule, for example, some 38 items are enumerated,[1] the same product, however, being enumerated sometimes more than once, in different kinds of packing.

The minimum aggregate weight is fixed specifically at 30,000 pounds, and each article takes its own carload rate. If this minimum is not loaded, sufficient weight is added to make it up, and is charged at the fifth-class rate, which is the prevailing but not exclusive rate for packing-house products in this territory. Other articles not enumerated may be included in the car as contraband—i. e., their weight is not counted to make up the minimum weight, and they are required to pay the L. C. L. rates applying to them. This permission, it may be said, is given by all the rules described below applicable to shipments in packing-house cars, and, as will be seen, is a source of complaint by other shippers.

(2) *Packing-house products, provisions, and fifth-class articles.*—A second rule opens the door to a very general mixture by permitting the addition to the packing-house products of a few meat products, such as salted green hams and dried, salted, smoked, or sweet pickled meats, and "any articles taking fifth class, in carloads."

[1] The items are as follows:

Beef, pickled, in bbls. or tierces.
Casings, beef or hog, in one-eighth barrels, kegs or tubs, not crated or boxed. (See Rule 11, Item 2055.)
Casings, sausage, beef, in bbls., tierces, one-quarter bbls., one-eighth bbls., one-eighth bbls. crated or boxed, kegs, tubs or pails, crated or boxed.
Casings, sausage, hog, in bbls., tierces, one-quarter bbls., one-eighth bbls., one-eighth bbls. crated or boxed, kegs, tubs or pails, crated or boxed.
Grease, N. O. S., in bbls., boxes or tierces.
Guts (sheep, beef or hog), in bbls., half-bbls., tierces or casks.
Hogs, Rinds, salted or pickled.
Lard (except leaf lard).
Lard Substitutes, N. O. S.
Liver, pickled, in bbls., tierces or casks.
Meats, canned, N. O. S. boxed.
Meats, cooked, in barrels, baskets (without handles and with solid tops), boxes or crates.
Meats, desiccated, in cans, boxed.
Meats, dried, N. O. S., in boxes, bbls. or casks.
Meats, dried, salted or smoked, in crates.
Meats, dried, sliced, in paper boxes, packed in cases.
Meats (lightly salted, not cured), viz.: Chucks, Boneless; Hog Hearts and Hog Necks; Cheek Meat; Shank Meat; Beef or Pork Trimmings and Veal, Boneless; in boxes or barrels. (See Rules 8, 9 and 10 of item 2055.)
Meats (lightly salted, not cured), viz.: Chucks, Boneless; Cheek Meat; Hog Hearts and Hog Necks; Shank Meat; Veal, Boneless; and Beef or Pork Trimmings; in boxes or barrels. When shipped in mixed car loads by themselves, or when in straight car loads, the minimum car load weight will be 30,000 lbs. (See Rules 9 and 11 of Item 2055.)
Meats, potted, in cans, boxed.
Meats, potted, in glass or earthenware, boxed.
Meats, salted, boxed.
Meats, smoked (except tongue), in bbls., boxes or casks.
Oil, oleo, in bbls. or tierces.
Oil, tallow, in bbls. or tierces.
Oil, red, in bbls. or tierces.
Oil, lard, in bbls. or tierces.
Oil, tanners', in bbls. or tierces.
Pigs' Feet, pickled.
Pigs' Feet, packed.
Pork, pickled, in bbls. or tierces.
Sausage, bologna or smoked, in bbls., baskets, boxes, casks or kegs.
Sausage, canned.
Stearine, in bags, bbls. or tierces.
Tails (cattle, ox or pig), edible, salted, pickled or dried, in boxes, bbls. or casks.
Tallow, in bbls. or tierces.
Tongues, pickled, in bbls. or tierces.
Tongues, smoked, in bbls., boxes, casks or kegs.
Tripe, pickled, in bbls., kegs or kits.

This mixture requires the same minimum weight of 30,000 pounds, as in the preceding rule, and, as there, the rate charged is the carload rate of each article. If bulk meats should be loaded in the car, the deficit weight, if any, is charged at fourth-class rate, otherwise at the fifth-class.

The following loading of a car shipped from Chicago to Washington, D. C., in January, 1918, is a sample of the kind of carload that can be made up under Rule 2:

Sample loading of packing-house products and fifth-class articles.

	Pounds.		
22 boxes chili con carne	686		
1 barrel salt pickled tripe	112		
14 boxes canned meats	278		
200 boxes pork and beans	20,800		
13 boxes mincemeat	633		
15 boxes peanut butter	270		
13 crates fruit jelly	988		
55 boxes preserved cherries	3,080		
1 keg preserved cherries	67		
192 boxes toilet soap	4,160		
Dunnage	225		
	31,299	at fifth class ($0.33)	$103.29
2 boxes beef extract in glass	60		
5 boxes fruit syrup in glass	370		
	430	at first class ($0.87)	3.74
Total weight	31,729	Total freight	107.03

This loading illustrates the advantages of the packer over his competitor, who does not handle meats, secured under Rule 2 of the Exceptions for the movement of mixed carloads of packing-house products and fifth-class articles. All the items in the car except the last two are rated at fifth class in carloads, and at this rate the shipper paid freight on 31,299 pounds. But some of the items making up this weight take a 36,000-pound minimum, and if he had shipped under the general rule to which the jobbers are confined he would have had to pay the fifth-class rate on that weight—i. e., on 4,701 pounds at $0.33, or $15.51 more than he actually paid. Both the packer and the nonpacker would find it advantageous under their option to pay the L. C. L. rate on the last two items. The only "packing-house products" in the list are the barrel of pickled tripe and the 14 boxes of canned meats, both of which take a 30,000-pound minimum. All the rest take 36,000 pounds. Under a rule which was designed to facilitate the movement of packing-house products in carloads are loaded 30,909 pounds of nonpacking-house products, generally handled by wholesale grocers and provisioners, upon

which, under their most favorable conditions, they would have had to make up the deficiency below 36,000 pounds; but, leavened by 390 pounds of packing-house products, the minimum load becomes only 30,000 pounds, and the shipper need pay on that weight only, or as much above it as he actually ships. A large proportion of grocery items take fifth class in carloads of a minimum weight of from 30,000 to 40,000 pounds or higher, the most frequent minimum, however, being 36,000.

(3) *Fresh meat and fresh-meat mixtures.*—Straight carloads of dressed meat and other specified fresh meats move under a strict minimum-charge requirement of 21,000 pounds at the dressed beef rates (Rule 5). Apparently, the shipment of packing-house products and fifth-class articles is not permitted under this rule, though there is the usual provision for carrying "any other articles" in the straight fresh-meat cars as contraband at their less-than-carload rates, the revenue therefrom not counting toward making up the minimum charge.

(4) *Dressed meats, provisions, packing-house products, and fifth-class articles.*—Ample provision, however, is made for mixing fresh meats and other products by a sort of omnibus rule (Rule 3) for the mixture of "dressed meats and provisions, packing-house products, or fifth-class articles." The dressed-beef rate is charged against at least 3,000 pounds in this mixture, whether that much dressed meat is included or not, and the other articles mentioned, packing-house products and fifth-class articles, take their respective carload rates. The same minimum charge is made as for a straight fresh-meat car—an amount equal to 21,000 pounds at the dressed-beef rate. A sample loading under this rule for a car shipped from Chicago to Washington, D. C., in 1918, is as follows:

	Pounds.		
104 quarters dressed beef	12,377		
100 dressed sheep	4,055		
1 barrel fresh beef	375		
2 boxes fresh beef	144		
99 boxes fresh offal	4,694		
1 box fresh offal	355		
51 crates fresh pork	1,824		
4 crates fresh pork	522		
		24,346 at dressed-meat rate ($0.65)	$158.25
1 box stationery	210		
1 box color capsules	6		
		216 at first class ($1.09)	2.35
16 cases oleo		615 at second class ($0.95)	5.84
1 crate smoked meat	119		
1 case chili sauce	40		
10 cases mustard	240		
1 keg olives	54		

	Pounds.		
4 cases canned fruit---	302		
8 cases canned veget--	349		
2 boxes fresh pigfeet--	116		
4 crates cooked meat--	148		
	1,368	at fifth class ($0.415)------	$5.68
Total weight----------	26,545	Total freight----	172.12

The earnings on this car from the fresh meat alone are more than the guaranteed minimum. The loading is introduced to show the small shipments of groceries at carload rates. There is no way by which a grocer could ship a keg of olives, a few cases of canned goods, and the other grocery items in this load each at its own carload rate and under so low a minimum. He would have to furnish at least 36,000 pounds in order to get a carload rate at all, and that rate is a common one on the total weight of the car and can not be lower and may be higher than the carload rates on these particular commodities. If in making up a consignment it became necessary to include a few hundred pounds of an article requiring 40,000 pounds for a load that becomes the minimum for his mixture. The packers' low minimum is fixed arbitrarily and not changed by the character of the articles included in the mixture.

An important peculiarity of Rule 3 is seen in the way the earnings from articles shipped in the car, though not specified in the mixture, are treated. Such articles are in the other rules treated as contraband—that is, they must pay L. C. L. rates, and the weight is not counted toward making up the minimum weight or the minimum charge. Thus Rule 2 already described provides that:

> Any other articles loaded in the same car with those described above including those taking Fifth Class, carloads, as per current Official Classification or as provided herein, will be charged for at the less-than-carload rate authorized for such articles, and the weight thereof shall not be applied toward making up the required minimum weight of 30,000 pounds.

The fresh-meat rule, Rule 5, has a similar provision:

> Any other articles than those specifically enumerated [in rules referred to] may be taken at the less-than-carload rate authorized for such articles, but the weight thereof and the charges thereon shall not be computed toward making up the authorized minimum weight or charge on the dressed fresh meats in the car.

Rule 3, under consideration, however, has this variation in the clause highly favorable to the shipper of such a mixture:

> Any other articles than those enumerated below, and articles taking Fifth Class, in car loads, * * * may be loaded in the same car, but such other articles will be charged for at the less-than-carload rate applying thereon. The minimum charge shall in no case *on the entire contents of the car*[1] be less than 21,000 pounds, at the dressed-beef rate.

[1] The italics are the Commission's.

A loading of a car shipped from Chicago to Washington, D. C., in October, 1918, illustrates how the rule operates.

	Pounds.		
247 packages fresh meat	17,176	at dressed-beef rates ($0.65)	$111.61
100 cases poultry 6,169			
4 barrels poultry 665	6,859	at first class ($1.09)	74.76
1 bundle cotton cloth 25			
15 cases butter 1,440			
1 bag garlic	1,990	at second class ($0.95)	18.90
3 barrels spice 550			
Total weight	26,025	Total freight	205.30

In this car the "any other articles" are the poultry, cotton cloth, butter, garlic, and spice, since they are not enumerated in the rule or in rules included by reference and do not take the fifth-class rate in carloads. Dressed poultry and butter, it may be noted, move at an "any quantity" rate—that is, the rate is the same in car loads as in less than carloads. If the usual method of dealing with "contraband" where there is a minimum charge were applied to this load, the freight charge would, instead of $205.30, be $230.16, made up as follows:

21,000 pounds at $0.65	$136.50
6,859 pounds at $1.09	74.76
1,990 pounds at $0.95	18.90
Total freight	230.16

The advantage of this provision is still greater when the proportion of dressed meats to packing-house products and fifth class is less than in the above car. This is illustrated by the following load shipped from Chicago to Washington in March, 1919:

	Pounds.		
Fresh meats, various kinds	5,554	at dressed-beef rate ($0.65)	$36.10
10 boxes meat, slightly salted	3,880	at fourth class ($0.49½)	19.21
25 cases D. S. meats 8,166			
1 case cooked meats 44	8,210	at fifth class ($0.42)	34.48
4 boxes stationery	428	at first class ($1.09½)	4.69
55 cases oleomargarine	5,250	at second class ($0.96)	50.40
2 crates cheese	1,774	at third class ($0.72)	12.77
Total weight	25,096	Total freight	157.65

Under the usual method of treating the "any other article" class, only the first items would be counted toward the minimum charge; the earnings from the last three items would be added to the minimum charge of $136.50 (21,000 pounds at 65 cents), making a total of $204.36. The minimum charge of 21,000 pounds at dressed-beef rates appears on the surface rather a severe requirement, but no difficulty seems to be experienced in meeting the requirements of the rule in making up loads to moderate-sized branch houses.

The following loading of a car shipped by Armour & Co. from Chicago to Huntington, W. Va., in April, 1918, illustrates still further

the variety of goods shipped in meat cars and the method of applying to each article its own class and rate:

Contents.	Weight.		Class.	Rate.	Freight.
9 quarters dressed beef	1,106		(1)		
5 pieces fresh beef cuts	161		(1)		
6 boxes fresh beef cuts	1,617		(1)		
2 boxes fresh beef prod	34		(1)		
7 boxes fresh pork cuts	353		(1)		
2 boxes fresh sausage	62		(1)		
		3,333		$0.284	$9.47
1 box shelled edible nuts, in glass	50		1		
3 bundles printed paper, general advertising matter	170		1		
1 box beef extract, glass	62		1		
1 box drugs	25		1		
		307		.585	1.80
15 boxes butter	685		2		
40 packages oleo	1,520		2		
		[2] 2,105		.495	10.42
4 boxes cheese	291		3		
1 box dried peaches	58		3		
1 box dried prunes	58		3		
		407		.390	1.59
1 box lard, in tin	12		5		
7 boxes peanut butter, in glass	126		5		
2 boxes canned evaporated milk	120		5		
1 box canned fruit	42		5		
7 boxes canned meats	163		5		
1 box smoked beef	62		5		
16 boxes smoked pork	2,038		5		
12 boxes boiled ham	885		5		
1 barrel pickled sausage	110		5		
5 boxes sliced bacon	98		5		
9 boxes dry salt meat	976		5		
3 barrels salt pickled pork	1,026		5		
129 packages lard	8,286		5		
10 packages lard substitute	2,331		5		
5 boxes cooked sausage	100		5		
32 boxes smoked sausage	1,222		5		
1 box dry sausage	8		5		
2 kegs crushed fruits	246		5		
12 boxes toilet soap	1,086		5		
1 box common soap	47		5		
Dunnage	210		5		
		[3] 19,196		.205	39.35
		25,348			$62.63

[1] The items for which no rating is given move on a commodity rate.
[2] An error of 100 in addition is noted by the Commission.
[3] An error of 2 in addition is noted by the Commission.

MIXING RULES IN OTHER TERRITORIES.—The western classification has no such elaborate scheme for mixing as that in force in eastern territory. The minimum carload weight for fresh meats rated at third-class is 20,000 pounds; cooked, cured, or preserved meats are rated at from third to fifth-class, and the minimum requirements are from 30,000 to 36,000 pounds; mixed carloads of fresh meats, cooked and cured meats, and other packing-house products are shipped subject to the general rule that they will be "taken at the highest rating provided for carload quantities of any article in the shipment," and that "the minimum weight shall be the highest carload minimum weight provided for any article in the shipment." Under an exception, however, joined in generally by the western trunk lines, provision is made for mixing fresh meats and packing-house products at the carload rate on each subject to a minimum weight of 24,000 pounds, with a minimum charge based on 20,000 pounds at the

higher rate, whether fresh meat or packing-house product. There is also the option for the shipper to pay the carload rate on the meat and less-than-carload rates on the packing-house products, or vice versa, if such a method of computation gives a lower total charge than the carload rate on each would give.[1] There is no provision, however, for the inclusion of general classes of articles, such as the fifth-class provision in official-classification territory; nor is there any provision for the admission of contraband articles.

The western classification also provides for shipping a mixture of fresh meats and dressed poultry at the carload rate on each commodity, subject to a minimum charge of 20,000 pounds at third-class, which is the minimum and the rate for both fresh meats and dressed poultry. The rules are equally liberal for shippers of produce, since dressed poultry or eggs may be shipped in mixed carloads with butter, butter grease, and oleomargarine under the same conditions as to minimum and rate.

In southwestern lines territory there is operative a rule for the mixture of fresh meats, packing-house products, oleomargarine, and butterine. The minimum weight is 24,000 pounds, and each article pays its own carload rate. The charge on the entire load can not be less than would accrue on the basis of the lowest rated packing-house product in the car and the minimum weight applying to such commodity.[2]

The carriers in southern classification territory follow a mixing policy similar to that followed by the western roads.

Section 12.—Summary and conclusions.

It is against the shipping conditions set forth above that complaints are made by jobbers and shippers in all sections of the country. The transportation advantages enjoyed by the packers go far to explain why they are successful merchandisers of commodities they do not produce and to explain their advantage as manufacturers of non-packing-house products. The chief objection to the private-car system formerly was that through liberal allowances for mileage the owners received virtually lower rates than their competitors. Since 1906 the enforcement of effective regulation has tended to remove this form of rate discrimination, though, as pointed out in section 9 above, it is still a factor of importance in the Southwest; but discriminations in service continue everywhere, and these are quite as evil in their effects on competitors as discriminations in rates.

SERVICE DISCRIMINATIONS THROUGH THE PEDDLER-CAR RULES.—It is clear from the foregoing sections that in the shipment of less-than-

[1] Boyd's Circular, No. 1–N. of W. T. L., I. C. C. No. A–874, rule 355.

[2] Leland's Southwestern Lines' Classification, Exceptions and Rules, Circular No. 1–H, I. C. C. No. 1244, Item No. 318.

carload quantities the packers have substantial advantages over their competitors in the distribution of foods, especially over wholesalers of produce and of groceries. These advantages exist in the shipment of both perishable and nonperishable foods. They consist in refrigerator service to towns which the wholesalers can not reach as frequently with their perishables as the packers can and in many cases can not reach at all. Nonperishable foods shipped in the packers' cars receive the same special service that is given fresh meats and is far superior to the box-car service, upon which jobbers must depend for such shipments. The exclusive service of the packers with its attendant advantages grew up naturally enough. A modern packing house turns out so large a tonnage requiring regular and frequent shipment as to make necessary the building up of a well-organized special service. As the volume of traffic to outlying towns grew the usual method of handling less-than-carload shipments by assembling them at the railroad freight house by means of drays and trap cars was abandoned, and in the various packing centers the practice was generally established and now exists of making such shipments from the plant. All interests require the prompt switching of packer cars to the transfer tracks and the expedited service they receive. It was natural, too, for the packers, as they extended the field of their operations in manufacturing and merchandising, to secure the privilege of including in the "meat car" other items of traffic—butterine, butter, cheese, poultry, canned goods, cereal foods, and other groceries and specialties. It is true that under most of the peddler-car rules these added lines are carried as "contraband," but the packers have succeeded in keeping down the minimum load requirements in these rules to such a point that they find no great difficulty in meeting the requirements and still have room in their cars for carrying commodities not specifically named in the rules. In securing favorable shipping rules the packers have been aided by the fact that they were the owners of the cars, and no doubt also by their influence as powerful shippers.

The inequalities in service which have thus grown up were probably not anticipated by the shippers or carriers. The handicap, however, under which it places the manufacturers and wholesalers who compete with the packers is serious.

To remedy the situation it has been proposed to open the refrigerator service of the peddler cars to all shippers—that is, to deprive the packers of the exclusive service they now have for L. C. L. shipments. This does not seem a practicable solution of the problem. The plan of loading the cars at the packing plant has advantages so clearly in the public interest that it is not likely any regulating body would order a departure from it. To permit

outside shippers to deliver their goods at the plant for shipment, would in most cases, owing to the already crowded condition at the packing house, be found impracticable. Even if this difficulty could be removed the plan would probably be found unworkable, for these reasons: (1) The proposal assumes that the space in the peddler cars is not fully utilized. This is frequently, but not always, the case; and if the advantage which comes from exclusive use were called in question, the packers, rather than admit foreign goods, could make sufficient effort to fill their cars to the limit, very likely by increasing their sales of groceries; or, where no other way is open they could defeat such a plan by shipping to some weak routes less frequently and abandoning others. (2) If jobbers were permitted to ship in peddler cars, each packer would need to have the right to ship in the cars of any other packer in order to avoid giving to jobbers the same kind of advantage they now complain that the packers enjoy; and this would involve a complete reorganization of a system of distributing fresh meats which has met with the hearty approval of the Interstate Commerce Commission. (3) The kind of service a jobber would get from opening to his use peddler cars routed as they are, to suit the convenience of particular packers, could never be satisfactory to him.

The interests of the two classes of shippers can not be met advantageously by the same service. The jobbers do not complain of the service the packers have for shipping products of the packing house. What they object to is that the special privileges which the packers have secured from the carriers for the delivery of such products are used for shipping goods in no way related to the packing industry, some of which are in no way entitled to the special service they receive.

When the jobbers ask for as good service as their powerful competitors have they are told that they do not supply sufficient traffic to warrant its installation. The answer to the jobbers suggests the remedy. It may be said that under existing conditions there is little motive for the carriers to extend their refrigerator service. As carriers it is not important to them that jobbers lose orders for perishables if those same orders are filled by a packer and pass over their lines in peddler cars. The self-interest of the carriers can not be relied upon to remove the discrimination. If the packers were required to ship their "added lines," their cheese, eggs, and other products requiring refrigeration in cars furnished by the carriers, whether owned or leased by them, they would be placed on a footing of equality with other shippers, there would be more traffic to support a scheduled refrigerator service, and such service would be improved for the equal benefit of all. Likewise, if the packers were

required to ship their nonperishables from the railroad freight house in box cars such as the jobbers are compelled to use, not only would that equality of service be secured which it is the first duty of carriers to provide, but there would also be an improvement in service by lessening the delays incident to making up carloads at points of origin and transfer, in which all shippers except those now favored by special rules would be gainers.

SERVICE DISCRIMINATIONS THROUGH SPECIAL MIXING RULES.—The packers have likewise secured the adoption of highly favorable rules for mixed carloads of fresh meats and packing-house products against which no complaint is made, but, in official classification territory especially, they have secured special rules permitting them to include in their mixture a great variety of goods, foreign to their slaughtering business, with resulting discriminations in service, as destructive to competitors as rate discriminations would be. Every shipper is interested in keeping as low as possible the minimum weight he must guarantee to secure carload rates. The competitive advantage of a low minimum is substantial. Under special mixing rules the packers may ship groceries of almost every description under minimum load requirements from 6,000 to 10,000 pounds less than a jobber can ship the same goods. The jobber's minimum for a straight load of canned goods is 36,000 pounds, and any mixture containing such goods will have at least that high a minimum; the packers can ship any quantity of canned goods in cars requiring a minimum of only 30,000 pounds, or in a fresh-meat mixture requiring only 21,000 pounds charged at the fresh-meat rate. This rate in official classification territory is a commodity rate, somewhat higher than fourth class. If the grocer includes in his mixture rice or dried beans, his minimum rises to 40,000; the packer may include these in his car without affecting the minimum.

Another substantial advantage the packers have in the transportation of these "added lines" of goods lies in the speed and certainty with which they are moved. The more highly organized a marketing system becomes the more important become the elements of regularity and promptness in the movement of goods. In both these respects the advantage arising from the packer's transportation service is decisive. His groceries may receive what is essentially an express service as against the slower freight service of his competitors. The regularity with which his cars move makes it possible to keep lower stocks on hand at branch houses than would otherwise be required, thus adding to the apparent efficiency of the branch house.

Until the packers are shorn of the transportation advantages granted them by the carriers, there is no way of measuring their true industrial efficiency.

Cold-Storage Facilities.

Section 13.—Nature and functions of cold storage.

A cold-storage warehouse may be somewhat arbitrarily defined as a place artificially or mechanically cooled to a temperature of 45° Fahrenheit or lower. (This definition follows, in the main, that of the Food Administration, but does not include the idea that the goods put therein are held for 30 days or more.) It should be noticed, however, that good management implies more than the keeping of the temperature below 45°. For some things freezing means ruin; for others it is highly desirable, if not necessary. Besides this it is important that fluctuations in temperature be avoided. Humidity and ventilation are likewise matters that must receive attention if the best results are to be obtained. All this implies properly-built rooms, specially equipped, and well managed. Under the circumstances it is not surprising to find that most of the dealers in food products, including some whose volume of business is large, are without anything like adequate cold-storage facilities of their own.

The chief legitimate function of storage is to save goods from a time when they are less wanted to a time when they are more wanted. The production of foodstuffs is, in the main, a seasonal occupation, and by means of storage it is possible to equalize what would otherwise be seasons of relative plenty and of relative scarcity. The first are ordinarily seasons of low prices and the second of high prices; and in this fact is to be found the motive for storage. In some cases the profits resulting from the storage of goods may be very large; but in the absence of certain abuses they are ordinarily simply a payment for the service rendered in the saving of goods from a time of less to a time of greater need. The price may indeed be higher at the time the goods are put into storage than it would be if they were all sold to consumers; but if they are eventually sold the price, under free competition, will then be lower than it would have been had no storage taken place. It must be remembered, moreover, that the fact that goods can be put into storage when prices are low, instead of being sold at a sacrifice, is itself a stimulus to production; and for this reason it can not safely be said that prices need normally be higher in time of plenty than they would be if modern storage methods were unknown. Indeed, it is quite possible that the contrary would be the case.

Section 14.—Possible abuses.

Some of the most important abuses that may arise in connection with cold storage are closely related to monopolistic control of facilities. Unfortunately, the monopolist can make goods or services valuable by making them scarce. This applies no less to the use of cold storage than to other things, though the profits may be secured

from the prices of the goods stored instead of from a high charge for the use of storage facilities. Competition in the use of storage normally tends to reduce the difference between the prices of the goods at the time they are put into storage and at the time they are sold to an amount sufficient to fairly cover all the costs of storage, including a profit sufficient to give a competitive return on the investment in the articles stored. By limiting the amount of goods stored, however, or by controlling the release of stored goods, or by withholding such goods from use, a monopoly can make the difference greater than this and so can secure a larger profit for itself.

Limitation of the quantity of goods stored, very largely at the expense of competitors, can be accomplished either by such a control of cold-storage facilities as will make them unavailable to independents or by such a manipulation of prices as will make it unduly dangerous for independents to make full use of such facilities as are at their disposal. The first of these is so obvious as to need no further discussion as far as the underlying principles are concerned. Price manipulation is, of course, not necessarily connected with a monopolistic control of cold-storage facilities, but it may be used in such a way as to accomplish very much the same results. A cut in price at a time when independent dealers have large stocks of goods in storage may result in heavy losses to them and may make them hesitate in the future about putting goods in storage when it would otherwise seem desirable. The matter is complicated by the fact that the sale of storage goods at prices which mean a loss to many dealers is not necessarily the result of manipulation in any proper sense of the word, but may be fully reconciled with market conditions. Under such circumstances price cutting, in an objectionable sense, is particularly difficult to detect.

In connection with price manipulation it should be noticed that the use of cold storage makes it relatively easy to determine at what times and in what quantity goods shall be put on the market, and for that reason greatly facilitates such manipulation. If, for example, it be decided that a heavy cut in prices is desirable, for the purpose of injuring competitors or for any other reason, the manipulator may begin by disposing of a large part of his stocks of goods in storage at satisfactory prices, retaining only enough to make his operations effective when the time for a heavy cut comes. The cost of the operation to him may thus be reduced to a minimum, and the use of storage may be made less attractive to his competitors. In like manner, he may hold goods for a rise when it is the object of his manipulation to bring about an increase in prices, leaving his competitors to take care of the market before the full measure of the increase appears. Such a control of cold storage as will make it impossible for rivals to know what is being done is naturally an important aid to any who are attempting such manipulation.

Another possible abuse that should be mentioned arises out of the fact that goods may be allowed to remain in storage until they are spoiled rather than be put on the market, where their presence will cause a reduction in prices. The circumstances under which this is profitable will be considered in the Commission's Report on The Wholesale Marketing of Food. Here it need only be pointed out that such a practice will rarely be profitable under competitive conditions and only under certain circumstances if the business is in the hands of a monopoly.

In view of the complaints that are sometimes made that the big meat-packing companies make very large profits by storing goods when prices are low, it can not be too strongly emphasized that storage tends to reduce the price differences on which such profits are dependent. Real abuses of storage are possible, but in their absence unreasonably large profits obtained in this way ordinarily point rather to a deficient than to an excessive use of storage and raise the question of whether or not there is some obstacle in the way of its use by those who are interested in the handling of foodstuffs.

Section 15.—Operation and occupancy of cold-storage space in the United States.

In order to ascertain the extent to which the five large meat-packing houses have an advantage in the use of cold-storage facilities, the Commission made a survey of the capacity of the cold-storage warehouses of the country in which food products are kept and of the extent to which space in them was leased or occupied without lease by members of the Big Five, including companies controlled by them. The examination covered private cold-storage facilities as well as those that were open to the public. This was obviously necessary where the purpose was to determine the extent to which these five concerns have an advantage as a result of their ability to hold perishable foodstuffs for more than a very short period of time.

Returns were secured from all cold-storage warehouses licensed by the Food Administration which were still in business, and a number of others were found which clearly belonged in the same class. Unlike the Food Administration the Commission included warehouses that stored goods for a period of less than 30 days, but only a few of this sort were found. The results, it is believed, include not less than 95 per cent of the concerns that can reasonably be regarded as engaged in the business of cold storage of food products, either for themselves or for others, and an even larger percentage of the space available.

Table 20, on page 106, shows the capacity in the late summer or early autumn of 1918 of all the cold-storage warehouses investigated,

together with the proportion operated by the Big Five (in all cases in which the Big Five or any of them are mentioned in connection with Tables 20–25 controlled companies so far as known are included) and by others. The former together operated 44.8 per cent of the cold-storage capacity of the country. They controlled in this way nearly half of the nonfreezing and a trifle less than a third of the freezing space. Swift & Co. alone controlled 14.9 per cent of the total cold-storage space, with 15.3 per cent of the nonfreezing and 13.8 per cent of the freezing. For Armour & Co. the figures were 13.3 per cent of the total, 14.6 per cent of the nonfreezing and 9.2 per cent of the freezing. The figures for the other three members of the Big Five, while large in amount, were relatively unimportant.

The proportion of the cold-storage space of the country operated by the Big Five is hardly large enough to give them any substantial degree of direct monopoly control, at least under ordinary conditions. As will presently be pointed out, this is not true of all the places at which they do business. Here, however, it should be noticed that, taking the country as a whole, their position is strong enough to give them a material advantage at times when the conditions of demand and supply are such as to make it necessary that practically all of the cold-storage facilities open to the public be fully used if the needs of the dealers are to be satisfied.

Even though there be no deliberate attempt to exclude others from the use of cold-storage facilities, the operation of a large amount of space by a packing-house company gives it the assurance that a considerable proportion, at least of its own goods, can be cared for at all times. In so far as its own facilities are inadequate it can bid for additional space in other warehouses. Much of this advantage can, of course, be secured by the packing companies individually; but a very effective measure of combination need imply little more than that each of the big packers regards the others as preferred customers. This preference need not show itself in the rates charged. It is enough if space is furnished to such customers at times when there is not enough for all.

Table 21, on page 106, shows the amount of cold-storage space leased or occupied without lease by the Big Five on November 30, 1917, and on March 31 and July 31, 1918. (The figures do not include certain commodities reports on which were not required. They are therefore somewhat too small, but it is believed that the errors can not be great. See Exhibit VI.) It includes space in their own and in each other's warehouses, as well as in those operated independently. It is, of course, possible that some of the space leased was not occupied, but there is no reason to suppose that this constituted any considerable proportion of it, and in any event the amount of space held

under lease is but a small part of the total with which this table is concerned. For these reasons the figures may be taken as showing approximately the amount of space occupied. It should be remembered, however, that, strictly speaking, they show the maximum that might have been so used.

From a comparison of Tables 20 and 21 it appears that even on March 31, 1918, when the figures were larger than on either of the other two dates considered the amount of space occupied by the Big Five, assuming that it includes all the space leased by them, was much less than the total amount they operated. This is true not only of the Big Five collectively but of each of them. It does not mean, of course, that they had more cold-storage facilities than they could use in every city. As will presently appear, there are some cities in which they had no such facilities of their own, and a few in which their own facilities were apparently inadequate. It should be noticed that the concern that operates public or combined public and private cold-storage facilities is in a particularly good position to be well posted as regards the supplies of various commodities that are available at any particular time. Where such a concern is also a dealer in those commodities it would seem to give it a decided advantage, unless, of course, the information is published at frequent intervals and thus made available to all who wish to make use of cold storage. It is entirely reasonable to suppose that some, at least, of the Big Five, controlling warehouses in different parts of the country, can gain information as regards the whole situation that would hardly be available to the operator of a small number of cold-storage houses, all of which were located in a single district. As will presently appear, many of their warehouses were reported as private. In so far as their private character is not merely temporary they are of less value as sources of information than if they were used by outside producers. There are, however, a considerable number of cold-storage warehouses operated by the big packers that are public or combined public and private. (See Tables 26–35, pp. 121–131.) This advantage, it should be noticed, is like that of always having space available for one's own goods, a natural result, rather than abuse, of the operation of a public or a combined public and private cold-storage business widely distributed. In so far as it is an evil it is with the principle itself that it is necessary to deal.

Table 22, on page 106, shows the amount of space operated by the Big Five and its members plus the amount leased or operated without lease in independent warehouses on November 30, 1917, and on March 31 and July 31, 1918, the figures given in Table 20 for the amount of space operated being assumed to be correct for all three dates. This is not a violent assumption, for the amount of space operated

represents the amount available, and this is much more constant than the amount of space occupied. Table 22, therefore, shows for the five large packers as a whole the amount of space in which they were interested by operation, by lease and by occupancy without lease.

Care should be taken to avoid any assumption that this table means more than it does. It does not, for example, show the amount of space utilized. That, so far as the members of the Big Five themselves are concerned, is shown in Table 21. It does not necessarily demonstrate the amount withheld from use, for some of the space operated by members of the five large packers was actually occupied by other concerns, though, as will appear later, many of the houses operated by the five large packers are private in character, and are apparently far from being fully occupied. Neither does this table of itself show that the five packers secured space in independent warehouses when they had facilities of their own available, since the cities in which space in independent warehouses was secured might have been those in which their own facilities were inadequate. As will soon be seen, however, when the large cities are considered, there are many localities in which they secured space in independent warehouses when their own were apparently far from filled with their own goods. The table does, however, help to give some idea of the extent to which the five great meat packers are a factor in the cold-storage business of the country.

Section 16.—Operation and occupancy of cold-storage space in large cities.

Table 23, on pages 107–111, shows the capacity of cold-storage plants in cities having an estimated population in 1917 in excess of 100,000, the amounts operated by the outside concerns and by the five great packers, individually and collectively, being given separately.

It will be noticed that the percentage of cold-storage capacity operated by members of the five is spread very unevenly over the cities here considered. In 12 [1] out of the 59 cities included in the table they operated more than one-half of the total capacity. The number would be somewhat reduced if St. Paul and Minneapolis were classed together, as for some purposes they should be. In only four cities—Dallas, Milwaukee, Pittsburgh, and Worcester—did the members of the Big Five operate more than 25 but less than 50 per cent of the total capacity. In a considerable number of cities the percentage of the total capacity that was operated by them was small; and in more than 20, including some very important cities (e. g., Atlanta, Balti-

[1] Boston, Chicago, Denver, Fort Worth, Kansas City, Lowell, New Haven, Omaha, St. Louis, St. Paul, Salt Lake City, and Spokane. If the independent Newark plant, which, for the reasons given in the footnote to the table, is treated as though it were in New York, were included in the storage for Newark the porcentage operated by the Big Five in the latter city would be only 23.6.

more, Cincinnati, Columbus, Providence, Richmond, and Washington), they had no facilities of their own.

The total capacity of the cold-storage plants of the country was 424,968,313 cubic feet. Of this members of the Big Five operated 190,261,848[1] cubic feet, or 44.8 per cent. Confining attention to cities having in 1917 an estimated population of 100,000 or more, the capacity of the cold-storage plants was 318,233,224 cubic feet, and of this members of the Big Five operated 153,231,542 cubic feet, or 48.2 per cent. It follows that in cities of less than 100,000 population the capacity of the plants was 106,735,089 cubic feet, and of this members of the Big Five operated 37,030,306 cubic feet, or 34.7 per cent. The influence of members of the Big Five on the cold-storage business of the country, so far as it was dependent on operation, was therefore relatively greater in cities with a population of 100,000 or more than it was in the rest of the country.

Table 24, on pages 111–115, shows the total amount of cold-storage space leased and occupied without lease by members of the Big Five on November 30, 1917, and on March 31 and July 31, 1918, in the cities included in Table 23. (It should be clearly understood throughout the discussion of space occupied that the figures do not include certain commodities, and are therefore somewhat too small. See Exhibit VI.) From this it appears that in nearly all of these cities in which members of the Big Five operated cold-storage plants the amount of space which they occupied, including all space leased by them, was less, and commonly much less, than the amount of space they operated. Chicago, Fort Worth, Kansas City, Omaha, St. Louis, and St. Paul were all important packing-house centers for at least some of the members of the Big Five. For this reason it is not surprising to find that the percentage of cold-storage space operated by them in those cities was large, but it should be noted that it was much larger than the amount of space they utilized.

Considering the five packers separately, there are few of those cities in which one or more operated a cold-storage plant and fully occupied the space in it. Turning to the cities in which the five operated one or more cold-storage plants but together controlled in this way less than 50 per cent of the cold-storage facilities, the situation is found, in a majority of the cases, to be much the same as those in which the percentage of control was larger. Some of the cities, however, in which the great packers occupied more space than they operated are of great importance. Taking these five packers as a whole, they are Philadelphia, Detroit, Hartford, Springfield (Mass.), Syracuse, and Memphis. This is partly explained by the

[1] Revised figures, slightly less than given in Part III, page 129. The percentage as there given and the total for the United States remain unchanged.

fact that in these cities some of the big packers had goods in storage, though operating no plants of their own. In these cities, however, there were but a few cases in which any one of the five operated storage warehouses and at the same time had facilities that were inadequate for its own needs. In New York Swift & Co. leased or occupied without lease at the end of March and July, 1918, more space than it operated, and the same is true of The Cudahy Packing Co. for all of the dates considered. The surplus of the three other big packers, however, was greater than the deficiency of these two. In Philadelphia Morris & Co. had apparently insufficient space of its own for all three dates, and in Boston this was true of Armour & Co. for the end of July. The same principle applies in a few other cases of less importance.

As a general rule, the amount of space occupied by any one of the five is very much less than the amount operated by it. This is shown, somewhat inadequately, by Table 16, opposite page. In this table are included all cities with a population of 100,000 or more in which any of the five large meat packers operated a private cold-storage warehouse, but in which none of them operated one that was open to the public. For each of the packers in each city the amount of space operated is regarded as 100 and the amount occupied calculated as a percentage of it. The space occupied may be somewhat larger than that reported, for certain commodities were not included in the returns that the cold-storage companies were asked to make. It is believed, however, that the discrepancy on this account is not serious. (See Exhibit VI.) On the other hand, the figures for space occupied may include space in warehouses of other of the Big Five or of independents. Assuming that they are approximately correct, they show that a very large amount of space was vacant on the three dates considered. (In many cases the companies reported that no space was unoccupied. The difference between the capacity operated and the amount of space reported as occupied is, however, so great in many instances that it has seemed impossible to account for it. It must be remembered that all the warehouses here considered were reported as licensed by the United States Food Administration as private warehouses, so that the space not occupied by the owners could not have been occupied by anyone else.)

TABLE 16.—*Cold storage of five greater meat packers—Leased and occupied space[1] in percentages of operated space[2] in cities with an estimated population of 100,000 or more in which one or more of the five operated a private cold-storage warehouse, but in which none of them operated a cold-storage warehouse open to the public.*

	Operated space.	Leased and occupied space[1] in percentages of operated space.		
		Nov. 30, 1917.	Mar. 31, 1918.	July 31, 1918.
Birmingham, Ala.:				
Armour & Co.	100	10.0	5.9	31.5
Cudahy Packing Co.	100	.7	.4	11.2
Cleveland, Ohio, Swift & Co.	100	22.5	75.9	47.0
Dallas, Tex., Armour & Co.	100	7.5	19.1	13.7
Denver, Colo.:				
Swift & Co.	100	13.2	30.6	11.3
Armour & Co.	100	14.0	27.7	17.8
Des Moines, Iowa, Swift & Co.	100	24.9	2.3	68.0
Detroit, Mich., Cudahy Packing Co.	100	49.2	83.0	.1
Fort Worth, Tex.:				
Swift & Co.	100	11.7	16.1	10.9
Armour & Co.	100	12.0	15.6	12.8
Hartford, Conn., Swift & Co.	100	59.2	19.1	72.7
Indianapolis, Ind., Armour & Co.	100	24.1	40.6	33.4
Los Angeles, Calif.:				
Swift & Co.	100	12.0	13.9	19.4
Wilson & Co., Inc.	100	11.4	47.2	37.3
Cudahy Packing Co.	100	9.7	29.2	27.6
Louisville, Ky., Armour & Co.	100	21.1	11.3	41.9
Lowell, Mass., Swift & Co.	100	[3]	[3]	[3]
Memphis, Tenn., Armour & Co.	100	20.9	21.2	53.9
Milwaukee, Wis., Swift & Co.	100	70.3	77.9	52.2
Newark, N. J.:				
Swift & Co.	100	8.8	14.7	14.4
Cudahy Packing Co.	100	13.2	2.9	1.7
New Haven, Conn., Swift & Co.	100	18.9	38.4	48.9
Pittsburgh, Pa.:				
Swift & Co.	100	9.3	27.4	5.7
Armour & Co.	100	9.9	15.0	15.8
Rochester, N. Y., Swift & Co.	100	39.2	9.6	41.1
St. Louis, Mo.[4]				
Swift & Co.	100	37.5	76.2	61.5
Armour & Co.	100	35.2	33.9	37.1
Morris & Co.	100	10.1	35.7	23.9
St. Paul, Minn., Swift & Co.	100	58.3	59.1	61.2
Salt Lake City, Utah, Cudahy Packing Co.	100	5.0	15.2	16.0
San Antonio, Tex., Armour & Co.	100	29.0	25.8	34.9
San Francisco, Calif.,[5] Swift & Co.	100	27.5	29.7	39.5
Seattle, Wash., Swift & Co.	100	8.8	.8	30.9
Spokane, Wash., Armour & Co.	100	30.0	28.0	19.6
Syracuse, N. Y., Swift & Co.	100	29.3	63.8	11.2
Worcester, Mass., Swift & Co.	100	19.0	30.6	55.3

[1] Includes space occupied in packer's own plant and leased and occupied in other plants.
[2] Figures for capacity operated in cubic feet will be found in Table 23; for capacity leased and occupied in Table 24. Private character is shown in Tables 26–35.
[3] Company reports none stored.
[4] Includes East St. Louis, Ill., and National City, Ill.
[5] Includes Oakland, Calif.

Table 25, on pages 116–120, shows for the cities and dates included in Tables 23 and 24 the amount of space operated by any of the five packers plus the amount leased or occupied without lease by them in independent warehouses, and the same thing for all of them considered as a unit. For these five concerns collectively it shows the amounts of space in which they were interested on the dates and in the cities given. For the individual packers, however, it does not include the amount of space leased or occupied without lease in each other's warehouses. A few concrete illustrations will help to make clear the char-

acter of this table. In Boston, for example, Armour & Co. operated 1,393,376 cubic feet of space. On November 30, 1917, it leased or occupied without lease 743,189 cubic feet. Of this, however, only 63,665 cubic feet was in its own warehouses, and 679,524 cubic feet was in warehouses belonging to none of the Big Five. The amount, therefore, entered in Table 25 is 2,072,900 cubic feet (1,393,376+679,524). On the same date Morris & Co., which operated no cold-storage space in Boston, leased or occupied without lease 77,464 cubic feet, of which 17,650 cubic feet was in a warehouse belonging to Armour & Co. and 59,814 cubic feet was in independent warehouses. Since the former amount has already been entered in Table 25 as space operated by Armour & Co., only the latter is now entered. The treatment of the other members of the five is similar. The sum of the amounts set opposite the names of the individual packers for Boston on November 30, 1917, or 10,269,914 cubic feet, represents the amount of space in which the Big Five were interested on that date in Boston. In so far as the figures showing occupancy are too small by reason of the failure to include certain commodities, they are too small here, and the figures showing the amount of space in which the five packers were interested should probably be larger.

From Table 25, in conjunction with Tables 23 and 24, it appears that in a large number of instances the big packers were securing space in independent warehouses when the total amount they held under lease or occupancy without lease, including space in their own warehouses, was less than the amount they operated. This is true whenever the number of cubic feet or the percentage shown in Table 25 was greater than the corresponding figures in Table 23, and these in turn were greater than the corresponding figures in Table 24.

While the showing for the five great packers as a whole is not without significance, save on the assumption that they are entirely independent of each other, the figures for the separate concerns should be examined in all cases in which it appears that the five are unnecessarily occupying space in independent warehouses. The tables may show that the five, taken together, are interested in more space than they either operate or occupy, but on close examination it may be seen that some operate much more space than they use but occupy little or none in outside warehouses. In Birmingham, Ala., for example, the Big Five, considered as a whole, operated 24.8 per cent of the warehouse space in the city. On July 31, 1918, they occupied only 11.4 per cent, but were interested through operation, lease, or occupancy in 30.5 per cent. It would appear, therefore, that they occupied a considerable amount of space in independent warehouses. Considering these five packers separately, however, it appears that Armour & Co. and The Cudahy Packing Co. were the only

ones who operated cold-storage plants, and; though they occupied some space in independent warehouses when their own were evidently far from filled, it amounted to only 0.9 per cent of the total amount in the city in the case of Armour & Co. and 0.1 per cent in the case of The Cudahy Packing Co. Even if the two be taken together, the amount in which they were interested was only 25.8 per cent, or 1 per cent more than they operated. The other three of the five all occupied space in the city but had no facilities of their own. As will appear from Tables 28 and 34, the Armour and Cudahy plants were both private, so the other three had to occupy independent space. There is little reason to doubt, however, that these private plants contained much vacant space.

There are a considerable number of cases in which the big packers occupy some space in independent warehouses when their own appear to be far from full. In most cases the amount so occupied is not very large, even when considered as a per cent of the space available to concerns that are not among the five largest meat packing concerns, and in some cases it is partly offset by the fact that the big packers' own warehouses are open to independent goods.

A very striking case, however, is that of St. Louis. Here the Big Five together operated 63.9 per cent of the total capacity. They occupied, assuming all space leased by them was fully occupied, but 19.6, 30.3, and 26.2 per cent on the three dates considered, but the amount of space in which they were interested was 70, 74.6, and 71.2 per cent of the total. Swift & Co., Armour & Co., and Morris & Co. were the only ones of the five who operated any space and all their plants were private. Swift & Co. operated 17.6 per cent of the space, occupied 6.6, 13.4, and 10.8 per cent on the three dates, but controlled through operation, lease, or occupancy without lease 20.4, 23.9, and 21.5. Armour & Co. operated 25.4, occupied 8.9, 8.6, and 9.4 per cent, and controlled 26.1, 25.9, and 26. Morris & Co. operated 20.9 per cent, occupied 2.1, 7.5, and 5 per cent, and controlled 21.6, 24, and 22.7 per cent. All three seem to have had a fairly large amount of vacant space, but notwithstanding this Swift & Co. and Morris & Co. occupied a considerable amount in independent warehouses. Taking these three together they operated only 63.9 per cent but controlled 68.1, 73.8, and 70.2 per cent. The space they occupied in independent warehouses was 11.6, 27.4, and 17.5 per cent of the amount available to others than themselves.

Kansas City is in some ways more worthy of notice than St. Louis. Here the Big Five operated 92.8 per cent of the cold-storage space. They were interested through operation, lease, or occupancy without lease, on July 31, 1918, in 94.6 per cent. All of the big packers operate some space in Kansas City and the amount occupied

was in all cases much less, on the three dates in question, than the amounts operated. Most of the space operated by Armour & Co. was public, or combined public and private, but the plants operated by the other big packers were all private.

The situation in Omaha is very similar to that of Kansas City. Here Wilson & Co., Inc., had no space of its own, and all the space operated by Armour & Co. was combined public and private. The space operated by the others was private. None of the four which had a plant of its own occupied nearly as much space as it operated. On March 31, 1918, the four of them together controlled through operation, lease, or occupancy without lease, 95.2 per cent of the cold-storage space in the city. Of this 3.6 per cent was in independent warehouses. It does not look like a very large amount, but it was more than half of the space independently operated.

The cities that have just been considered are all important packing-house centers and it is to be expected that a large percentage of the space should be under the control of the five dominant packers. It would appear that in all of them the five have much more space than they could occupy on the three dates selected, and these were all during the war when the pressure on the cold-storage facilities of the country seemed to be especially great. Attention is challenged, therefore, by the fact that notwithstanding the large amount of space which they operated, they seem to have leased or occupied without lease a very large proportion of the independent space.

An interesting point in connection with the extent to which the five packers exercise an influence on the cold-storage plants of the country is the number operating and the number using cold-storage facilities in each of the large cities. This is shown in Tables 23 and 24, for all cities having an estimated population in 1917 of 100,000 or more, the numbers using cold storage being available for three dates only. It is more clearly brought out, however, in Table 17 below, which is derived from Tables 23 and 24, with the estimated population of each city added.

From this table it appears that it is only in New York, Chicago, and Kansas City that all five operated cold-storage warehouses. Four were similarly represented in Omaha, and three in St. Louis and Los Angeles. In 7 cities but two of the Big Five had cold-storage facilities of their own, and in 24 but one. There were 22 cities in which there was no cold-storage warehouse operated by a member of the Big Five.

As throwing some light on the relative importance of the five great packers in the cold-storage business, it should be noted that of the 37 cities in which one or more operated a warehouse of this sort, Swift & Co. was represented in 27, Armour & Co. in 17, The Cudahy Packing Co. in 9, Morris & Co. in 6, and Wilson & Co., Inc., in 4.

TABLE 17.—*Cities with an estimated population of 100,000 or more on July 1, 1917, classified by the number of the five larger meat packers operating cold-storage plants, with names of packers, if operating, and the number holding space by lease or occupancy without lease on Nov. 30, 1917; Mar. 31, 1918; or July 31, 1918.*

City.[1]	Estimated population.	Names of Big Five operating.	Number of Big Five using space.
Albany, N. Y.	106,632		4
Atlanta, Ga.	196,144		5
Baltimore, Md.	594,637		4
Bridgeport, Conn.	124,724		1
Buffalo, N. Y.	475,781		5
Cincinnati, Ohio.	414,248		3
Columbus, Ohio.	220,135		4
Dayton, Ohio.	128,939		0
Fall River, Mass.	129,828		1
Grand Rapids, Mich.	132,861		1
Minneapolis, Minn.	373,448		5
Nashville, Tenn.	118,136		5
New Bedford, Mass.	121,622		3
Providence, R. I.	259,895		5
Reading, Pa.	111,607		2
Richmond, Va.	158,702		5
Scranton, Pa.	149,541		5
Tacoma, Wash.	117,446		2
Toledo, Ohio.	202,010		4
Trenton, N. J.	113,974		0
Washington, D. C.	369,282		5
Yonkers, N. Y.	103,066		0
Cleveland, Ohio.	692,259	Swift & Co.	4
Dallas, Tex.	129,738	Armour & Co.	3
Des Moines, Iowa.	104,052	Swift & Co.	3
Detroit, Mich.	619,648	Cudahy Packing Co.	5
Hartford, Conn.	112,831	Swift & Co.	4
Houston, Tex.	116,878	do.	4
Indianapolis, Ind.	283,622	Armour & Co.	3
Louisville, Ky.	240,808	do.	4
Lowell, Mass.	114,366	Swift & Co.	0
Memphis, Tenn.	151,877	Armour & Co.	5
Milwaukee, Wis.	445,008	Swift & Co.	3
New Haven, Conn.	152,275	do.	4
New Orleans, La.	377,010	Armour & Co.	4
Portland, Oreg.	308,399	Swift & Co.	4
Rochester, N. Y.	264,714	do.	4
St. Paul, Minn.	252,465	do.	5
Salt Lake City, Utah.	121,623	Cudahy Packing Co.	1
San Antonio, Tex.	128,215	Armour & Co.	4
San Francisco, Calif.[2]	677,428	Swift & Co.	5
Seattle, Wash.	366,445	do.	4
Spokane, Wash.	157,656	Armour & Co.	2
Springfield, Mass.	108,668	Swift & Co.	5
Syracuse, N. Y.	158,559	do.	5
Worcester, Mass.	166,106	do.	5
Birmingham, Ala.	189,716	Armour & Co. Cudahy Packing Co.	5
Boston, Mass.[3]	970,724	Swift & Co. Armour & Co.	5
Denver, Colo.	268,439	Swift & Co. Armour & Co.	2
Fort Worth, Tex.	109,597	Swift & Co. Armour & Co.	2
Newark, N. J.	418,789	Swift & Co. Cudahy Packing Co.	4–5
Philadelphia, Pa.	1,735,514	Swift & Co. Morris & Co.	5
Pittsburgh, Pa.	586,196	Swift & Co. Armour & Co.	5
Los Angeles, Calif.	535,485	Swift & Co. Wilson & Co., Inc. Cudahy Packing Co.	5

[1] No public cold-storage plants were reported for Camden, N. J., Lawrence, Mass., Lynn, Mass., Paterson, N. J., Schenectady, N. Y., or Youngstown, Ohio. They are therefore not included in this table.
[2] Includes Oakland, Calif.
[3] Includes Cambridge, Mass., and Somerville, Mass.
[4] The same circumstances that made it necessary to classify a large independent cold-storage warehouse in Newark with those of New York in Tables 23–25, make it impossible to say whether four of the Big Five or all of them make use of the facilities in Newark.

TABLE 17.—*Cities with an estimated population of 100,000 or more on July 1, 1917, classified by the number of the five larger meat packers operating cold-storage plants, with names of packers, if operating, etc.*—Continued.

City.	Estimated population.	Names of Big Five operating.	Number of Big Five using space.
St. Louis, Mo.[1]	[2] 845,942	Swift & Co. Armour & Co. Morris & Co.	4
Omaha, Nebr.	177,777	Swift & Co. Armour & Co. Morris & Co. Cudahy Packing Co.	5
Chicago, Ill.	2,547,201	Swift & Co. Armour & Co. Morris & Co. Cudahy Packing Co. Wilson & Co., Inc.	5
Kansas City, Mo.[3]	407,912	Swift & Co. Armour & Co. Morris & Co. Cudahy Packing Co. Wilson & Co., Inc.	5
New York, N. Y.[4]	6,050,049	Swift & Co. Armour & Co. Morris & Co. Cudahy Packing Co. Wilson & Co., Inc.	5

[1] Includes East St. Louis, Ill., and National City, Ill.
[2] Population of National City which was 253 in 1910, not included. Bureau of the Census does not estimate its 1917 population.
[3] Includes Kansas City, Kans.
[4] Includes Jersey City, N. J.

Section 17.—Plants operated by the big packers.

For the purpose of showing more clearly the position of the Big Five in the cold-storage business, Tables 26–35, on pages 121–131, have been compiled. These show for each of the big packers the plants operated, either in its own name or in that of companies under its control, together with the location of each plant, its capacity, its public or private character, the class of commodities for which it was used (i. e., the commodities reported for the three dates under consideration), and, in the case of those indirectly operated, the name of the controlled company, the location of its head office, and the method of control. As regards this last point, a company was regarded as controlled by one of the big packing companies when the latter, or any of the individuals prominently identified with it as owners, held 50 or more per cent of the stock, directly or through control of the stockholder. For example, 99.9 per cent of the stock of the Butchers' Slaughtering & Melting Co., of Brighton (Boston), Mass., is owned by the New England Rendering Co. The latter is controlled by a stock ownership of 51 per cent by the Consolidated Rendering Co. This in turn is controlled by the Swift family, who own 77 per cent of the stock.

In these tables the relative importance of the different members of the Big Five, so far as the cold-storage business is concerned, clearly appears. Swift & Co. heads the list with 92 cold-storage warehouses,

having a capacity of 63,575,237 cubic feet. Of these, 43 warehouses, with a capacity of 41,492,606 cubic feet, were operated in the name of Swift & Co., and 49 warehouses, with a capacity of 22,082,631 cubic feet, in the names of other organizations. Armour & Co. controlled only 52 warehouses, with a capacity of 56,425,502 cubic feet, of which 29, with a capacity of 36,472,864 cubic feet, were operated in its own name and 23, with a capacity of 19,952,638 cubic feet, in the names of other concerns. The other three companies fall far behind, Wilson & Co., Inc., controlling only 13, with a capacity of 23,266,913 cubic feet, of which 6, with a capacity of 18,595,247 cubic feet, were operated in its own name and 7, with a capacity of 4,671,666 cubic feet, in the names of other concerns.

One of the things most strikingly brought out by the tables is the large number of cold-storage warehouses that were reported as private in character. This means that such a plant is available only for goods belonging to the company by which it is operated. Strictly, it would seem that a distinction should be made between any of the Big Five and a company under its control. In practice, however, a plant was often reported as private when it contained goods belonging to the packer by which it was operated or to any of the companies under its control. From the tables it would appear that only 14 of the 92 cold-storage plants operated by Swift & Co., or a capacity of 12,416,908 cubic feet out of a total of 63,575,237 cubic feet, were open to concerns that were not members of the Swift group. Thirteen of the 52 cold-storage plants operated directly or indirectly by Armour & Co., or a capacity of 17,223,215 cubic feet out of 56,425,502 cubic feet, were open to concerns that were not members of the Armour group. For Morris & Co. the figures are 8 out of 20, or a capacity of 3,538,699 cubic feet out of 28,458,258 cubic feet, and for The Cudahy Packing Co. 3 out of 15, or a capacity of 217,867 cubic feet out of 18,535,938. All of the cold-storage plants controlled by Wilson & Co., Inc., were private. Taking the five packers together, only 38 plants, with a capacity of 33,396,689 cubic feet, out of 192, with a capacity of 190,261,848[1] cubic feet, were open to independent concerns. One hundred and fifty-four were private.

It is not here contended that, considered by itself, there is necessarily anything objectionable in the operation of a private cold-storage plant by one of the five, or by any other concern that has the need for such facilities. From one point of view a cold-storage warehouse may be regarded as a legitimate part of the packing-house or branch-house equipment. When, however, one interest, or a closely related group of interests, controls a very large percentage of the important facilities of any kind in the country it becomes a matter of

[1] Revised figures, slightly less than given in Part III, page 129.

public concern. As has already been shown, the five packers together operate 44.8 per cent of the cold-storage space of the country. From the facts just considered it appears that 82.4 per cent of this, or 36.9 per cent of the total, is reported by them as private, being divided among them in definite proportions.

A very important point, on which, unfortunately, no thoroughly satisfactory information can now be secured, is the extent to which cold-storage warehouses that are now private in character were private when the pressure on the storage facilities of the country was not as great as it is now and how far they will continue to be private when the pressure is relieved in the future. In so far as their private character is only temporary, it means that the facilities available to the public are smallest when the need is greatest, and the owners of cold-storage plants have a decided advantage. So long, however, as it is permissible for a user of cold storage to operate a plant that can readily be changed in character from public to private or that may be operated as a combined public and private plant, the advantage can hardly be regarded as illegitimate, however strong may be the tendency to a high concentration of individual control. The remedy, in so far as a remedy is needed, would seem to be a separation of the operation and use of cold-storage plants open to the public. This applies, of course, to the independent dealers as well as to the great packers, though the size of the latter, and especially of Swift & Co. and Armour & Co., is such as to make the principle, in their case, of greater practical importance.

Assuming that the private character of the great majority of the plants controlled by the five packers is permanent, and not merely a result of a passing pressure on the cold-storage facilities of the country, the great extent of their control, while it emphasizes their importance in the production and distribution of foodstuffs, is in some respects less significant than would be a similar control of the facilities open to the public. There is, for example, less opportunity or temptation for discrimination against their rivals. Facilities which are private in time of pressure will not become a part of the public supply when the need is small, thus rendering less profitable those which are public at all times. Nevertheless, the ownership of private cold-storage facilities may give important competitive advantages. A large amount of space is available at all times, and the owner is at no disadvantage in competing for space in the public warehouses when he has more goods than he can find room for in his own warehouses. The tables already presented seem to show, however, that there are not many cases where any of the big packing companies, having facilities of its own, finds it necessary to bid for outside space.

It will be noticed that Swift & Co. and Armour & Co. have a number of cold-storage warehouses in relatively small places in nearly all parts of the country. It is quite possible that in order to have these facilities available they were compelled to provide them. This is one of the points that should be borne in mind in considering the large number of instances in which the facilities owned are private. Many of the private cold-storage facilities, however, are located in the large cities. It is, of course, not implied that criticism necessarily attaches to the packer for the existence of a situation whereby he controls so large a proportion of a necessary food-holding facility; but the situation is fraught with danger, as in the case of any public utility which is unseparated from private interests and unregulated in the public interest.

Section 18.—The big packers and the cold storage of butter, cheese, eggs, and poultry.

From the table below it appears that many of the cold-storage warehouses operated directly or indirectly by the five great meat packers contained butter, cheese, eggs, or poultry, and some of them contained nothing else. It is, of course, well known that the members of the Big Five are large dealers in products of this sort, and many independent dealers fear that eventually nearly all of the business will fall into the hands of the big packers.

Table 18 (A, B, C, D), on page 102, shows for butter, cheese, eggs, and poultry the total amounts in cold storage on November 30, 1917, and on March 31 and July 31, 1918, together with the amounts owned by the five, collectively and individually, and the percentages which the holdings of the five were of the total. It will be noticed at once that the five packers, taking them together, controlled a very large percentage of the business in each of these products, so far as cold-storage goods were concerned. In all cases their percentage of the amount in cold storage was larger on March 31 than on either of the other two dates. At the end of March they owned 42.77 per cent of the poultry in cold storage, 34.66 per cent of the cheese, 33.80 per cent of the butter, and 20.26 per cent of the eggs. Except for eggs, this is more than a third of the total amount of each commodity held in storage on that date. Of butter and cheese their percentage was smallest on November 30, being 19.18 per cent for butter and 33.35 per cent for cheese. Of eggs and poultry it was smallest on July 31, being 11.67 per cent for eggs and 29.54 per cent for poultry. This is more than a third of the cheese held in storage, more than a fourth of the poultry, a little less than a fifth of the butter, and only a little more than a tenth of the eggs.

TABLE 18.—*Absolute and relative holdings of butter, cheese, eggs, and poultry in cold storage on Nov. 30, 1917; Mar. 31, 1918; and July 31, 1918—The five larger meat packers and all other storers.*

(A) BUTTER.

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.
Swift	3,718,532	4.93	821,729	5.28	6,287,982	6.91
Armour	6,257,193	8.30	2,856,945	18.35	7,331,897	8.06
Morris	1,034,607	1.37	453,112	2.91	2,561,571	2.82
Wilson	1,454,695	1.93	380,239	2.44	2,144,559	2.36
Cudahy	2,001,907	2.65	749,278	4.82	3,177,482	3.49
The Big Five	14,466,934	19.18	5,261,303	33.80	21,503,491	23.64
All other storers	60,941,984	80.82	10,304,851	66.20	69,465,700	76.36
Grand total	75,408,918	100.00	15,566,154	100.00	90,969,191	100.00

(B) CHEESE.

Swift	3,907,301	5.08	1,067,963	2.97	2,855,309	5.84
Armour	14,038,049	18.27	7,900,440	22.00	8,157,877	16.69
Morris	2,424,482	3.16	1,017,290	2.83	1,037,768	2.13
Wilson	930,358	1.21	434,282	1.21	1,062,368	2.17
Cudahy	4,323,292	5.63	2,027,399	5.65	3,549,451	7.26
The Big Five	25,623,482	33.35	12,447,379	34.66	16,662,773	34.09
All other storers	51,210,410	66.65	23,470,521	65.34	32,210,262	65.91
Grand total	76,833,892	100.00	35,917,900	100.00	48,873,035	100.00

(C) EGGS.

Swift	264,575	5.32	46,201	4.04	662,814	3.35
Armour	409,059	8.23	144,296	12.61	1,069,125	5.41
Morris	42,673	.86	12,393	1.08	166,431	.84
Wilson	28,208	.57	6,283	.55	186,760	.95
Cudahy	95,014	1.91	22,644	1.98	221,248	1.12
The Big Five	839,529	16.89	231,817	20.26	2,306,378	11.67
All other storers	4,132,005	83.11	912,364	79.74	17,450,508	88.33
Grand total	4,971,534	100.00	1,144,181	100.00	19,756,886	100.00

(D) POULTRY.

Swift	6,776,677	15.25	6,642,094	17.57	1,917,791	11.84
Armour	5,376,543	12.10	5,430,916	14.37	1,821,924	11.24
Morris	1,517,695	3.41	525,089	1.39	222,089	1.37
Wilson	949,704	2.14	2,853,790	7.55	517,433	3.19
Cudahy	605,894	1.36	713,687	1.89	307,159	1.90
The Big Five	15,226,513	34.26	16,165,576	42.77	4,786,396	29.54
All other storers	29,214,805	65.74	21,632,550	57.23	11,418,042	70.46
Grand total	44,441,318	100.00	37,798,126	100.00	16,204,438	100.00

It is worth noting that, taking the five packers together, their proportions of the total quantities in storage were largest in all cases, except that of poultry, when the amounts on hand were the smallest, both for themselves and for others. Moreover, the stocks which they had varied less, as between the three dates, than did the stocks held by the independents. This is shown by the following table, which is derived from Table 18:

TABLE 19.—*Relative cold-storage holdings for Nov. 30, 1917; Mar. 31, 1918; and July 31, 1918, of butter, cheese, eggs, and poultry—The five great packers and all other storers.*

	Butter.			Cheese.			Eggs.			Poultry.		
	Nov. 30, 1917.	Mar. 31, 1918.	July 31, 1918.	Nov. 30, 1917.	Mar. 31, 1918.	July 31, 1918.	Nov. 30, 1917.	Mar. 31, 1918.	July 31, 1918.	Nov. 30, 1917.	Mar. 31, 1918.	July 31, 1818.
	P. ct.	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*	*P. ct.*
Swift	59.14	13.07	100.00	100.00	27.33	73.08	39.92	6.97	100.00	100.00	98.01	28.30
Armour	85.34	38.97	100.00	100.00	56.28	58.11	38.26	13.50	100.00	99.00	100.00	33.55
Morris	40.39	17.69	100.00	100.00	41.96	42.80	25.64	7.45	100.00	100.00	34.60	14.63
Wilson	67.83	17.73	100.00	87.57	40.88	100.00	15.10	3.36	100.00	33.28	100.00	18.13
Cudahy	63.00	23.58	100.00	100.00	46.89	82.10	42.94	10.23	100.00	84.90	100.00	43.04
The Big Five	67.28	24.47	100.00	100.00	48.58	65.03	36.40	10.05	100.00	94.19	100.00	29.61
All other storers	87.73	14.83	100.00	100.00	45.83	62.90	23.68	5.23	100.00	100.00	74.05	39.08
Grand total	82.90	17.11	100.00	100.00	46.75	63.61	25.16	5.79	100.00	100.00	85.05	36.46

In this table the largest holdings of any commodity are called 100, and the holdings of the same commodity at any other date are calculated as percentages of the largest holdings. The holdings of butter, for example, were in all cases at a maximum on July 31. On November 30 the holdings of the five packers were 67.28 per cent of their maximum and the holdings of the independents 87.73 per cent of the independent maximum. This is one of the two instances in which the percentage of the five was smaller than that of the independents, though the maximum, medium, and minimum did not fall on the same dates for both classes of dealers. The high percentages which are generally found in the case of the five show a smaller degree of variation between different dates than do those of the other concerns. March 31 is in all cases, except that of poultry, near the end of the cold-storage season, and sales by the big packers must be relatively large in the month or two following if the carrying over of goods into the next season is to be avoided. Upon the whole it would seem that the big packers play a larger part in the ruling of the market from season to season than do their competitors. This is accomplished partly by the purchase of goods that were put into cold storage by others.

It is proper to point out that the fact that the percentage of ownership, so far as butter, cheese, and eggs are concerned, is largest for the big packers when the amounts held by both themselves and their competitors are smallest seems to indicate that the commanding advantage of the former does not lie in the control of cold-storage facilities. It is true that the evidence on this point is not conclusive, since the facilities available to outside concerns may be less in March than at other times. The only evidence that this is the case is found in the fact that, as shown in Table 21, the storage facilities of the country seem to have been more fully occupied on

March 31 than at either of the other dates for which information has been secured. It will be noticed that in butter, cheese, and eggs the stocks which Armour & Co. held in storage are larger than those of any other of the five. In poultry Swift & Co. has the largest stocks. In all of these commodities the others of the five are of minor importance.

Section 19.—Conclusions.

There is little room for doubt that the control of cold-storage facilities by the five great packers is sufficient to give them a substantial advantage in the handling of many kinds of food products. Part of this is to be attributed to the fact that they have facilities of their own which seem to be ample for their needs, at least under ordinary circumstances, if not in times of great pressure. It is clear, however, that in a number of cases they secure space in independent warehouses, and apparently there are instances in which this is done when they have space of their own available. During the past year or two there have been complaints from many cities that the space available is inadequate,[1] and some of the dealers feel that this is at least partly due to the fact that much space is take by the members of the Big Five. So far as has been learned, however, there are not many complaints that space is taken by them when they have no use for it.

It should be realized, however, that abuses are not necessary to give the Big Five a very substantial advantage. The operation of approximately 45 per cent of the cold-storage facilities of the country, with the opportunity to bid for a share of most of the rest, can not but help to strengthen the probability that their goods will be cared for at any time. The confidence that this is so gives them an advantage in bidding for goods to put into storage. Their right to have private plants of their own can hardly be questioned under present conditions, but wherever they exercise this right they furnish little or no demand for public cold-storage facilities. There are probably a number of places in which the demand of the independents is not sufficient to warrant the establishment of a public cold-storage plant, though the combined demand of the independents and the big packers would be. Under such circumstances the building of a cold-storage plant by one of the big packers means that it will have adequate facilities, but not necessarily that anyone else will. In somewhat larger places the fact that the big packers do not share to any great extent in the demand for cold-storage facilities may affect, not the existence, but the adequacy of facilities available to independent dealers. The total amount of the facilities needed in any one

[1] See Commission's Report on The Wholesale Marketing of Food, Chap. III, sec. 14.

place is less when they are available to all than when part of them are available to but one dealer or group of dealers.

Upon the whole, it would seem that the only way in which opportunities can be equalized for all dealers is to bring about a separation of the use and the operation of cold-storage facilities in much the same way as the use and the operation of the railways have been separated. The problems of cold storage may be, in a degree, less serious than those of the railroads, but it will hardly be denied that a problem affecting the conditions under which a large part of the food supply of the Nation is furnished is of first importance both to producer and consumer of foodstuffs. The reasons for the separation are very similar in the two cases. From many points of view the cold-storage warehouse should be regarded as a public utility, with facilities available to all on equal terms. Such equality is hardly to be expected when those who operate a cold-storage warehouse are among those who wish to make use of it. From a practical point of view such equality is impossible when a large proportion of the cold-storage facilities are private in character.

In the application of the principles involved any plan for the separation of the operation and use of cold-storage facilities would differ considerably in details from the plan adopted for the separation of the operation and use of the railroads. In particular, the problem presented by the strictly private cold-storage warehouse is of great importance, whereas the cases in which an industrial concern would wish to establish a strictly private railroad are exceptional, and when they do occur are not ordinarily of great importance.

If the furnishing of the food supply of the Nation is to be regarded as a strictly private business, it is difficult to see how any prohibition of the private cold-storage warehouse could be justified. It may be seriously questioned, however, whether such an important industry, especially in view of the large proportion of control that is now established and exercised by a few large concerns, should be regarded as a strictly private business.

It is fully realized that in the application of any particular plan many details would have to be considered. The private operation of cold warerooms, such as would be needed for use from day to day in any establishment dealing in perishable goods, would be recognized. While technically such a wareroom may be included under the head of cold storage, a distinction sufficient for practical purposes is not difficult to make.

TABLE 20.[1]—*Cold storage in the United States—Capacity operated by the five meat packers and by independent concerns, 1917–18.*

	Nonfreezing.		Freezing.		Total.	
	Cubic feet.	Per cent.	Cubic feet.	Per cent.	Cubic feet.	Per cent.
United States	321,130,227	100.0	103,838,086	100.0	424,968,313	100.0
Independent concerns	165,269,918	51.5	69,436,547	66.9	234,706,465	55.2
Big Five concerns	155,860,309	48.5	34,401,539	33.1	[2] 190,261,848	44.8
Swift & Co.	49,244,607	15.3	14,330,630	13.8	63,575,237	14.9
Armour & Co.	46,842,644	14.6	9,582,858	9.2	56,425,502	13.3
Morris & Co.	21,519,036	6.7	6,939,222	6.7	28,458,258	6.7
Wilson & Co., Inc.	21,482,592	6.7	1,784,321	1.7	23,266,913	5.5
Cudahy Packing Co.	16,771,430	5.2	1,764,508	1.7	18,535,938	4.4

[1] See Exhibit VI, p. 308.
[2] Revised figures, slightly less than given in Pt. III, p. 129. The percentage as there given and the total for the United States remain unchanged.

TABLE 21.[1]—*Cold storage in the United States—Space leased and occupied[2] by the five large packers, 1917–18.*

	Nov. 30, 1917 (cubic feet).	Per cent of total capacity.	Mar. 31, 1918 (cubic feet).	Per cent of total capacity.	July 31, 1918 (cubic feet).	Per cent of total capacity.
Big Five concerns	41,451,585	9.8	60,145,316	14.2	54,500,148	12.8
Swift & Co.	15,412,109	3.6	21,886,739	5.2	21,252,212	5.0
Armour & Co.	13,218,429	3.1	18,056,291	4.2	16,725,369	3.9
Morris & Co.	6,221,192	1.5	7,759,780	1.8	5,832,167	1.4
Wilson & Co., Inc.	3,883,227	.9	7,026,383	1.7	5,416,373	1.3
Cudahy Packing Co.	2,716,628	.7	5,416,123	1.3	5,274,027	1.2

[1] See Exhibit VI, p. 308.
[2] Includes space occupied in packers' own plants and leased and occupied in other plants.

TABLE 22.[1]—*Cold storage in the United States—Space in which the big packers were interested,[2] 1917–18.*

	Nov. 30, 1917 (cubic feet).	Per cent of total capacity.	Mar. 31, 1918 (cubic feet).	Per cent of total capacity.	July 31, 1918 (cubic feet).	Per cent of total capacity.
Big Five concerns	201,226,025	47.4	204,463,125	48.1	204,334,823	48.1
Swift & Co.	65,970,623	15.5	68,251,558	16.1	67,922,750	16.0
Armour & Co.	59,368,790	14.0	58,562,497	13.8	60,081,420	14.1
Morris & Co.	31,785,093	7.5	32,044,066	7.5	30,807,934	7.3
Wilson & Co., Inc.	24,881,623	5.9	25,681,670	6.0	25,100,065	5.9
Cudahy Packing Co.	19,219,896	4.5	19,923,334	4.7	20,422,654	4.8

[1] See Exhibit VI, p. 308.
[2] Includes all space operated by the Big Five, and in plants not so operated the space leased or occupied without lease by them.

TABLE 23.[1]—*Cold storage in cities with an estimated population of 100,000 or more*[2]*—Capacity operated by the five large packers and by outside concerns, 1917–18.*

	Nonfreezing.		Freezing.		Total.	
	Cubic feet.	Per cent.	Cubic feet.	Per cent.	Cubic feet.	Per cent.
Albany, N. Y.	336,645	100.0	240,597	100.0	577,242	100.0
Outside concerns	336,645	100.0	240,597	100.0	577,242	100.0
Big Five						
Atlanta, Ga.	434,011	100.0	47,000	100.0	481,011	100.0
Outside concerns	434,011	100.0	47,000	100.0	481,011	100.0
Big Five						
Baltimore, Md	1,223,500	100.0	1,006,520	100.0	2,230,020	100.0
Outside concerns	1,223,500	100.0	1,006,520	100.0	2,230,020	100.0
Big Five						
Birmingham, Ala.	720,052	100.0	180,373	100.0	900,425	100.0
Outside concerns	518,127	72.0	159,109	88.2	677,236	75.2
Big Five	201,925	28.0	21,264	11.8	223,189	24.8
Armour & Co.	154,000	21.4	18,900	10.5	172,900	19.2
Cudahy Packing Co.	47,925	6.6	2,364	1.3	50,289	5.6
Boston, Mass.[3]	8,846,788	100.0	9,426,643	100.0	18,273,431	100.0
Outside concerns	4,002,261	45.2	4,906,422	52.0	8,908,683	48.8
Big Five	4,844,527	54.8	4,520,221	48.0	9,364,748	51.2
Swift & Co.	4,292,770	48.5	3,678,602	39.0	7,971,372	43.6
Armour & Co.	551,757	6.3	841,619	9.0	1,393,376	7.6
Bridgeport, Conn.	53,168	100.0	1,980	100.0	55,148	100.0
Outside concerns	53,168	100.0	1,980	100.0	55,148	100.0
Big Five						
Buffalo, N. Y.	2,142,907	100.0	2,652,076	100.0	4,794,983	100.0
Outside concerns	2,142,907	100.0	2,652,076	100.0	4,794,983	100.0
Big Five						
Chicago, Ill.	74,279,132	100.0	22,823,341	100.0	97,102,473	100.0
Outside concerns	18,369,216	24.7	11,753,469	51.5	30,122,685	31.0
Big Five	55,909,916	75.3	11,069,872	48.5	66,979,788	69.0
Swift & Co.	18,767,988	25.3	3,343,007	14.6	22,110,995	22.8
Armour & Co.	20,966,207	28.2	3,969,859	17.4	24,936,066	25.7
Morris & Co.	8,653,698	11.7	2,953,341	12.9	11,607,039	11.9
Wilson & Co., Inc.	7,384,400	9.9	789,100	3.5	8,173,500	8.4
Cudahy Packing Co.	137,623	.2	14,565	.1	152,188	.2
Cincinnati, Ohio	1,621,517	100.0	410,685	100.0	2,032,202	100.0
Outside concerns	1,621,517	100.0	410,685	100.0	2,032,202	100.0
Big Five						
Cleveland, Ohio	16,440,963	100.0	687,135	100.0	17,128,098	100.0
Outside concerns	15,805,155	96.1	535,875	78.0	16,341,030	95.4
Big Five	635,808	3.9	151,260	22.0	787,068	4.6
Swift & Co.	635,808	3.9	151,260	22.0	787,068	4.6
Columbus, Ohio	779,000	100.0	319,100	100.0	1,098,100	100.0
Outside concerns	779,000	100.0	319,100	100.0	1,098,100	100.0
Big Five						
Dallas, Tex.	1,201,043	100.0	52,000	100.0	1,253,043	100.0
Outside concerns	746,043	62.1	20,000	38.5	766,043	61.1
Big Five	455,000	37.9	32,000	61.5	487,000	38.9
Armour & Co.	455,000	37.9	32,000	61.5	487,000	38.9
Dayton, Ohio	241,200	100.0			241,200	100.0
Outside concerns	241,200	100.0			241,200	100.0
Big Five						
Denver, Colo.	3,262,149	100.0	1,002,676	100.0	4,264,825	100.0
Outside concerns	992,812	30.4	645,000	64.3	1,637,812	38.4
Big Five	2,269,337	69.6	357,676	35.7	2,627,013	61.6
Swift & Co.	1,458,750	44.7	263,000	26.2	1,721,750	40.4
Armour & Co.	810,587	24.9	94,676	9.5	905,263	21.2

[1] See Exhibit VI, pp. 308, 309.

[2] No public cold-storage plants were reported for Camden, N. J., Lawrence, Mass., Lynn, Mass., Paterson, N. J., Schenectady, N. Y., or Youngstown, Ohio.

[3] Boston, Mass., includes Cambridge and Somerville.

TABLE 23.—*Cold storage in cities with an estimated population of 100,000 or more—Capacity operated by the five large packers and by outside concerns, 1917–18*—Continued. (For qualifying footnotes see p. 107.)

	Nonfreezing.		Freezing.		Total.	
	Cubic feet.	Per cent.	Cubic feet.	Per cent.	Cubic feet.	Per cent.
Des Moines, Iowa	1,172,288	100.0	136,038	100.0	1,308,326	100.0
Outside concerns	1,068,730	91.2	136,038	100.0	1,204,768	92.1
Big Five	103,558	8.8	.....	.....	103,558	7.9
Swift & Co	103,558	8.8	.....	.....	103,558	7.9
Detroit, Mich	1,125,854	100.0	896,748	100.0	2,022,602	100.0
Outside concerns	1,111,811	98.8	896,748	100.0	2,008,559	99.3
Big Five	14,043	1.2	.....	.....	14,043	.7
Cudahy Packing Co	14,043	1.2	.....	.....	14,043	.7
Fall River, Mass	26,400	100.0	8,000	100.0	34,400	100.0
Outside concerns	26,400	100.0	8,000	100.0	34,400	100.0
Big Five	.....	.....	.....	.....	.....	.....
Fort Worth, Tex	5,897,008	100.0	1,811,612	100.0	7,708,620	100.0
Outside concerns	357,418	6.1	373,583	20.6	731,001	9.5
Big Five	5,539,590	93.9	1,438,029	79.4	6,977,619	90.5
Swift & Co	2,494,920	42.3	667,080	36.8	3,162,000	41.0
Armour & Co	3,044,670	51.6	770,949	42.6	3,815,619	49.5
Grand Rapids, Mich	420,000	100.0	30,000	100.0	450,000	100.0
Outside concerns	420,000	100.0	30,000	100.0	450,000	100.0
Big Five	.....	.....	.....	.....	.....	.....
Hartford, Conn	289,056	100.0	70,057	100.0	359,113	100.0
Outside concerns	260,819	90.2	70,057	100.0	330,876	92.1
Big Five	28,237	9.8	.....	.....	28,237	7.9
Swift & Co	28,237	9.8	.....	.....	28,237	7.9
Houston, Tex	407,446	100.0	153,602	100.0	561,048	100.0
Outside concerns	390,000	95.7	100,000	65.1	490,000	87.3
Big Five	17,446	4.3	53,602	34.9	71,048	12.7
Swift & Co	17,446	4.3	53,602	34.9	71,048	12.7
Indianapolis, Ind	6,633,220	100.0	885,280	100.0	7,518,500	100.0
Outside concerns	6,452,115	97.3	879,920	99.4	7,332,035	97.5
Big Five	181,105	2.7	5,360	.6	186,465	2.5
Armour & Co	181,105	2.7	5,360	.6	186,465	2.5
Kansas City, Mo.[1]	18,782,880	100.0	3,659,211	100.0	22,442,091	100.0
Outside coucerns	1,495,812	8.0	130,679	3.6	1,626,491	7.2
Big Five	17,287,068	92.0	3,528,532	96.4	20,815,600	92.8
Swift & Co	3,321,933	17.7	1,577,562	43.1	4,899,495	21.8
Armour & Co	2,476,026	13.2	1,023,409	28.0	3,499,435	15.6
Morris & Co	2,693,672	14.3	89,600	2.4	2,783,272	12.4
Wilson & Co., Inc	4,145,000	22.1	405,000	11.1	4,550,000	20.3
Cudahy Packing Co	4,650,437	24.7	432,961	11.8	5,083,398	22.7
Los Angeles, Calif	4,202,690	100.0	730,590	100.0	4,933,280	100.0
Outside concerns	3,136,348	74.6	620,180	84.9	3,756,528	76.1
Big Five	1,066,342	25.4	110,410	15.1	1,176,752	23.9
Swift & Co	101,067	2.4	14,490	2.0	115,557	2.4
Wilson & Co., Inc	387,288	9.2	18,600	2.5	405,888	8.2
Cudahy Packing Co	577,987	13.8	77,320	10.6	655,307	13.3
Louisville, Ky	1,554,021	100.0	198,643	100.0	1,752,664	100.0
Outside concerns	1,193,577	76.8	143,571	72.3	1,337,148	76.3
Big Five	360,444	23.2	55,072	27.7	415,516	23.7
Armour & Co	360,444	23.2	55,072	27.7	415,516	23.7
Lowell, Mass	26,460	100.0	.....	.....	26,460	100.0
Outside concerns	.....	.....	.....	.....	.....	.....
Big Five	26,460	100.0	.....	.....	26,460	100.0
Swift & Co	26,460	100.0	.....	.....	26,460	100.0
Memphis, Tenn	793,495	100.0	256,384	100.0	1,049,879	100.0
Outside concerns	750,000	94.5	254,800	99.4	1,004,800	95.7
Big Five	43,495	5.5	1,584	.6	45,079	4.3
Armour & Co	43,495	5.5	1,584	.6	45,079	4.3
Milwaukee, Wis	1,555,092	100.0	403,083	100.0	1,958,175	100.0
Outside concerns	971,000	62.4	296,000	73.4	1,267,000	64.7
Big Five	584,092	37.6	107,083	26.6	691,175	35.3
Swift & Co	584,092	37.6	107,083	26.6	691,175	35.3

[1] Includes Kansas City, Kans.

TABLE 23.—*Cold storage in cities with an estimated population of 100,000 or more—Capacity operated by the five large packers and by outside concerns, 1917–18*—Continued. (For qualifying footnotes see p. 107.)

	Nonfreezing.		Freezing.		Total.	
	Cubic feet.	Per cent.	Cubic feet.	Per cent.	Cubic feet.	Per cent.
Minneapolis, Minn.	1,327,415	100.0	642,534	100.0	1,969,949	100.0
Outside concerns	1,327,415	100.0	642,534	100.0	1,969,949	100.0
Big Five	.....	.....	.....	.....	.....	.....
Nashville, Tenn.	1,236,596	100.0	90,424	100.0	1,327,020	100.0
Outside concerns	1,236,596	100.0	90,424	100.0	1,327,020	100.0
Big Five	.....	.....	.....	.....	.....	.....
New Bedford, Mass.	.....	.....	129,292	100.0	129,292	100.0
Outside concerns	.....	.....	129,292	100.0	129,292	100.0
Big Five	.....	.....	.....	.....	.....	.....
Newark, N. J.[1]	272,772	100.0	67,460	100.0	340,232	100.0
Outside concerns	25,000	9.2	46,000	68.2	71,000	20.9
Big Five	247,772	90.8	21,460	31.8	269,232	79.1
Swift & Co.	226,212	82.9	21,460	31.8	247,672	72.8
Cudahy Packing Co.	21,560	7.9	.....	.....	21,560	6.3
New Haven, Conn.	847,778	100.0	234,180	100.0	1,081,958	100.0
Outside concerns	272,223	32.1	210,050	89.7	482,273	44.6
Big Five	575,555	67.9	24,130	10.3	599,685	55.4
Swift & Co.	575,555	67.9	24,130	10.3	599,685	55.4
New Orleans, La.	1,570,499	100.0	101,594	100.0	1,672,093	100.0
Outside concerns	1,352,352	86.1	100,000	98.4	1,452,352	86.9
Big Five	218,147	13.9	1,594	1.6	219,741	13.1
Armour & Co.	218,147	13.9	1,594	1.6	219,741	13.1
New York, N. Y. (Greater)[2]	20,315,691	100.0	13,895,289	100.0	34,210,980	100.0
Outside concerns	15,611,181	76.8	11,870,172	85.4	27,481,353	80.3
Big Five	4,704,510	23.2	2,025,117	14.6	6,729,627	19.7
Swift & Co.	36,635	.2	1,326,823	9.6	1,363,458	4.0
Armour & Co.	1,613,565	7.9	332,808	2.4	1,946,373	5.7
Morris & Co.	997,188	4.9	172,176	1.2	1,169,364	3.4
Wilson & Co., Inc.	1,965,090	9.7	193,310	1.4	2,158,400	6.3
Cudahy Packing Co.	92,032	.5	.....	.....	92,032	.3
Omaha, Nebr.	15,380,009	100.0	3,662,068	100.0	19,042,077	100.0
Outside concerns	678,655	4.4	534,077	14.6	1,212,732	6.4
Big Five	14,701,354	95.6	3,127,991	85.4	17,829,345	93.6
Swift & Co.	2,760,530	18.0	1,385,194	37.8	4,145,724	21.8
Armour & Co.	3,583,179	23.3	756,797	20.7	4,339,976	22.8
Morris & Co.	3,221,875	20.9	408,320	11.1	3,630,195	19.0
Cudahy Packing Co.	5,135,770	33.4	577,680	15.8	5,713,450	30.0
Philadelphia, Pa.	4,545,162	100.0	3,693,899	100.0	8,239,061	100.0
Outside concerns	4,526,122	99.6	3,535,109	95.7	8,061,231	97.8
Big Five	19,040	.4	158,790	4.3	177,830	2.2
Swift & Co.	7,040	.1	158,790	4.3	165,830	2.0
Morris & Co.	12,000	.3	.....	.....	12,000	.2
Pittsburgh, Pa.	3,029,983	100.0	453,386	100.0	3,483,369	100.0
Outside concerns	1,638,255	54.1	428,708	94.6	2,066,963	59.3
Big Five	1,391,728	45.9	24,678	5.4	1,416,406	40.
Swift & Co.	116,728	3.8	.....	.....	116,728	3.4
Armour & Co.	1,275,000	42.1	24,678	5.4	1,299,678	37.3
Portland, Oreg.	636,902	100.0	641,157	100.0	1,278.059	100.0
Outside concerns	565,013	88.7	582,849	90.9	1,147,862	89.8
Big Five	71,889	11.3	58,308	9.1	130,197	10.2
Swift & Co.	71,889	11.3	58,308	9.1	130,197	10.2
Providence, R.I.	1,266,011	100.0	241,152	100.0	1,507,163	100.0
Outside concerns	1,266,011	100.0	241,152	100.0	1,507,163	100.0
Big Five	.....	.....	.....	.....	.....	.....
Reading, Pa.	219,215	100.0	130,785	100.0	350,000	100.0
Outside concerns	219,215	100.0	130,785	100.0	350,000	100.0
Big Five	.....	.....	.....	.....	.....	.....

[1] One independent plant with a capacity of 800,000 cubic feet is tabulated under New York City as its contents could not be segregated for Newark.

[2] Includes also Jersey City, N. J., and one independent plant at Newark, N. J., with a capacity of 800,000 cubic feet, the contents of which could not be segregated for Newark.

TABLE 23.—*Cold storage in cities with an estimated population of 100,000 or more—Capacity operated by the five large packers and by outside concerns, 1917–18*—Continued. (For qualifying footnotes see p. 107.)

	Nonfreezing.		Freezing.		Total.	
	Cubic feet.	Per cent.	Cubic feet.	Per cent.	Cubic feet.	Per cent.
Richmond, Va.	1,782,208	100.0	150,571	100.0	1,932,779	100.0
Outside concerns	1,782,208	100.0	150,571	100.0	1,932,779	100.0
Big Five						
Rochester, N. Y.	1,436,975	100.0	256,625	100.0	1,693,600	100.0
Outside concerns	1,363,675	94.9	256,625	100.0	1,620,300	95.7
Big Five	73,300	5.1			73,300	4.3
Swift & Co.	73,300	5.1			73,300	4.3
St. Louis, Mo.[1]	12,090,120	100.0	3,089,200	100.0	15,179,320	100.0
Outside concerns	3,256,320	26.9	2,230,557	72.2	5,486,877	36.1
Big Five	8,833,800	73.1	858,643	27.8	9,692,443	63.9
Swift & Co.	2,572,549	21.3	89,899	2.9	2,662,448	17.6
Armour & Co.	3,286,640	27.2	566,858	18.4	3,853,498	25.4
Morris & Co.	2,974,611	24.6	201,886	6.5	3,176,497	20.9
St. Paul, Minn.	2,788,430	100.0	668,072	100.0	3,456,502	100.0
Outside concerns	697,660	25.0	606,028	90.7	1,303,688	37.7
Big Five	2,090,770	75.0	62,044	9.3	2,152,814	62.3
Swift & Co.	2,090,770	75.0	62,044	9.3	2,152,814	62.3
Salt Lake City, Utah	503,580	100.0	94,280	100.0	597,860	100.0
Outside concerns	130,500	25.9	69,800	74.0	200,300	33.5
Big Five	373,080	74.1	24,480	26.0	397,560	66.5
Cudahy Packing Co.	373,080	74.1	24,480	26.0	397,560	66.5
San Antonio, Tex.	247,637	100.0	7,056	100.0	254,693	100.0
Outside concerns	220,514	89.0	7,056	100.0	227,570	89.4
Big Five	27,123	11.0			27,123	10.6
Armour & Co.	27,123	11.0			27,123	10.6
San Francisco, Calif.[2]	4,464,824	100.0	1,418,691	100.0	5,883,515	100.0
Outside concerns	3,610,709	80.9	1,179,770	83.2	4,790,479	81.4
Big Five	854,115	19.1	238,921	16.8	1,093,036	18.6
Swift & Co.	854,115	19.1	238,921	16.8	1,093,036	18.6
Scranton, Pa.	453,092	100.0	385,362	100.0	838,454	100.0
Outside concerns	453,092	100.0	385,362	100.0	838,454	100.0
Big Five						
Seattle, Wash.	2,991,633	100.0	1,344,621	100.0	4,336,254	100.0
Outside concerns	2,941,643	98.3	1,325,295	98.6	4,266,938	98.4
Big Five	49,990	1.7	19,326	1.4	69,316	1.6
Swift & Co.	49,990	1.7	19,326	1.4	69,316	1.6
Spokane, Wash.	628,478	100.0	416,036	100.0	1,044,514	100.0
Outside concerns	133,673	21.3	176,260	42.4	309,933	29.7
Big Five	494,805	78.7	239,776	57.6	734,581	70.3
Armour & Co.	494,805	78.7	239,776	57.6	734,581	70.3
Springfield, Mass.	692,990	100.0	339,051	100.0	1,032,041	100.0
Outside concerns	591,020	85.3	318,051	93.8	909,071	88.1
Big Five	101,970	14.7	21,000	6.2	122,970	11.9
Swift & Co.	101,970	14.7	21,000	6.2	122,970	11.9
Syracuse, N. Y.	981,937	100.0	395,904	100.0	1,377,841	100.0
Outside concerns	913,279	93.0	395,904	100.0	1,309,183	95.0
Big Five	68,658	7.0			68,658	5.0
Swift & Co.	68,658	7.0			68,658	5.0
Tacoma, Wash.	59,344	100.0	247,725	100.0	307,069	100.0
Outside concerns	59,344	100.0	247,725	100.0	307,069	100.0
Big Five						
Toledo, Ohio	138,000	100.0	76,964	100.0	214,964	100.0
Outside concerns	138,000	100.0	76,964	100.0	214,964	100.0
Big Five						
Trenton, N. J.	4,360	100.0	1,560	100.0	5,920	100.0
Outside concerns	4,360	100.0	1,560	100.0	5,920	100.0
Big Five						
Washington, D. C.	1,311,989	100.0	193,422	100.0	1,505,411	100.0
Outside concerns	1,311,989	100.0	193,422	100.0	1,505,411	100.0
Big Five						

[1] Includes East St. Louis, Ill., and National City, Ill.

[2] Includes Oakland, Calif.

TABLE 23.—*Cold storage in cities with an estimated population of 100,000 or more—Capacity operated by the five large packers and by outside concerns, 1917–18*—Continued. (For qualifying footnotes see p. 107.)

	Nonfreezing.		Freezing.		Total.	
	Cubic feet.	Per cent.	Cubic feet.	Per cent.	Cubic feet.	Per cent.
Worcester, Mass.	853,276	100.0	389,599	100.0	1,242,875	100.0
Outside concerns	457,056	53.6	378,499	97.2	835,555	67.2
Big Five	396,220	46.4	11,100	2.8	407,320	32.8
Swift & Co.	396,220	46.4	11,100	2.8	407,320	32.8
Yonkers, N. Y.	21,000	100.0	120,000	100.0	141,000	100.0
Outside concerns	21,000	100.0	120,000	100.0	141,000	100.0
Big Five	.....	.....	.....	.....	.....	.....

TABLE 24.[1]—*Cold storage in cities with an estimated population of 100,000 or more*[2]—*Space leased and occupied*[3] *by the five larger packers*,[4] *1917–18.*

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Albany, N. Y.	22,491	3.9	43,061	7.5	20,840	3.6
Swift & Co.	7,955	1.4	16,905	2.9	7,105	1.2
Armour & Co.	11,397	2.0	20,959	3.6	5,970	1.1
Morris & Co.	2,101	.3	225	.1	4,796	.8
Wilson & Co., Inc.	1,088	.2	4,972	.9	2,969	.5
Atlanta, Ga.	23,805	4.9	35,065	7.3	58,724	12.2
Swift & Co.	6,263	1.3	5,140	1.1	9,301	1.9
Armour & Co.	4,061	.8	4,104	.8	4,617	1.0
Morris & Co.	11,804	2.5	6,290	1.3	19,718	4.1
Wilson & Co., Inc.	1,178	.2	17,818	3.7	24,339	5.1
Cudahy Packing Co.	499	.1	1,713	.4	749	.1
Baltimore, Md.	31,115	1.4	21,093	.9	57,015	2.6
Swift & Co.	16,662	.7	4,752	.2	20,411	.9
Armour & Co.	11,911	.5	15,705	.7	35,815	1.6
Morris & Co.	1,481	.1	258	(5)	500	.1
Wilson & Co., Inc.	1,061	.1	378	(5)	289	(5)
Birmingham, Ala.	24,718	2.7	11,378	1.3	102,619	11.4
Swift & Co.	1,116	.1	994	.1	27,878	3.1
Armour & Co.	17,280	1.9	10,200	1.2	54,422	6.0
Morris & Co.	4,528	.5	.....	.....	8,845	1.0
Wilson & Co., Inc.	1,418	.2	.....	.....	5,830	.7
Cudahy Packing Co.	376	(5)	184	(5)	5,644	.6
Boston, Mass.[6]	2,194,706	12.0	2,864,390	15.7	4,742,648	26.0
Swift & Co.	1,271,371	7.0	2,217,315	12.1	2,970,880	16.3
Armour & Co.	743,189	4.1	466,617	2.6	1,550,840	8.5
Morris & Co.	77,464	.4	134,994	.7	105,762	.0
Wilson & Co., Inc.	23,341	.1	26,844	.2	36,470	.2
Cudahy Packing Co.	79,341	.4	18,620	.1	78,696	.4
Bridgeport, Conn.	.....	.....	.....	.....	2,500	4.5
Cudahy Packing Co.	.....	.....	.....	.....	2,500	4.5
Buffalo, N. Y.	652,789	13.6	1,023,475	21.3	203,993	4.3
Swift & Co.	15,380	.3	157,374	3.3	50,938	1.1
Armour & Co.	5,174	.1	6,101	.1	12,594	.3
Morris & Co.	318,152	6.6	316,438	6.6	41,471	.9
Wilson & Co., Inc.	297,843	6.2	543,562	11.3	98,373	2.0
Cudahy Packing Co.	16,240	.4	.....	.....	617	(5)

[1] See Exhibit VI, pp. 308, 309.
[2] No public cold-storage plants were reported from the following cities: Camden, N. J.; Lawrence, Mass.; Lynn, Mass.; Paterson, N. J.; Schenectady, N. Y.; or Youngstown, Ohio.
[3] Includes space occupied in packer's own plant and leased and occupied in other plants.
[4] No cold-storage space was reported as occupied by any of the Big Five in plants in the following cities: Dayton, Ohio; Lowell, Mass.; Trenton, N. J.; or Yonkers, N. Y.
[5] Less than one-tenth of 1 per cent.
[6] Boston, Mass., includes Cambridge and Somerville.

TABLE 24.—*Cold storage in cities with an estimated population of 100,000 or more—Space leased and occupied by the five larger packers, 1917–18*—Cont. (For qualifying footnotes see p. 111.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Chicago, Ill.	16,310,797	16.8	21,252,145	21.9	17,430,783	18.0
Swift & Co.	5,002,765	5.2	5,857,901	6.1	5,329,258	5.5
Amour & Co.	5,814,928	6.0	9,611,386	9.9	7,338,545	7.6
Morris & Co.	3,543,305	3.6	2,835,154	2.9	2,131,562	2.2
Wilson & Co., Inc.	1,885,393	1.9	2,836,670	2.9	2,282,622	2.3
Cudahy Packing Co.	64,406	.1	111,034	.1	348,796	.4
Cincinnati, Ohio.	3,353	.2	4,351	.2	7,685	.4
Swift & Co.	3,211	.2	1,680	.1	7,606	.4
Armour & Co.	100	(1)	2,671	.1	79	(1)
Morris & Co.	42	(1)	.....	.....	.....	.....
Cleveland, Ohio.	188,905	1.1	608,611	3.6	387,210	2.3
Swift & Co.	177,476	1.1	597,395	3.5	370,071	2.2
Armour & Co.	2,588	(1)	2,197	(1)	1,523	(1)
Morris & Co.	5,352	(1)	496	(1)	213	(1)
Wilson & Co., Inc.	3,489	(1)	8,523	.1	15,403	.1
Columbus, Ohio.	140,816	12.8	145,915	13.3	110,026	10.0
Swift & Co.	1,561	.1	1,752	.1	857	.1
Armour & Co.	30,039	2.7	27,066	2.5	.....	.....
Morris & Co.	108,577	9.9	114,923	10.5	103,765	9.4
Wilson & Co., Inc.	639	.1	2,174	.2	5,404	.5
Dallas, Tex.	39,581	3.2	93,049	7.4	88,069	7.0
Swift & Co.	3,258	.3	192	(1)	11,799	.9
Armour & Co.	36,323	2.9	92,857	7.4	66,670	5.3
Wilson & Co., Inc.	.....	.....	.....	.....	9,600	.8
Denver, Colo.	354,052	8.3	778,021	18.2	356,074	8.3
Swift & Co.	227,761	5.3	527,444	12.3	195,286	4.6
Armour & Co.	126,291	3.0	250,577	5.9	160,788	3.7
Des Moines, Iowa.	27,549	2.1	2,930	.2	70,616	5.4
Swift & Co.	25,800	2.0	2,362	.2	70,431	5.4
Armour & Co.	1,749	.1	568	(1)	123	(1)
Morris & Co.	.....	.....	.....	.....	62	(1)
Detroit, Mich.	72,989	3.6	459,364	22.7	101,408	5.0
Swift & Co.	10,758	.5	103,152	5.1	23,563	1.2
Armour & Co.	1,791	.1	84,482	4.2	18,786	.9
Morris & Co.	38,210	1.9	165,494	8.2	25,292	1.2
Wilson & Co., Inc.	15,314	.8	93,875	4.6	33,746	1.7
Cudahy Packing Co.	6,916	.3	12,361	.6	21	(1)
Fall River, Mass.	744	2.2	63	.2	.....	.....
Armour & Co.	744	2.2	63	.2	.....	.....
Fort Worth, Tex.	827,349	10.7	1,105,068	14.3	832,999	10.8
Swift & Co.	370,535	4.8	507,987	6.6	344,215	4.5
Armour & Co.	456,814	5.9	597,081	7.7	488,784	6.3
Grand Rapids, Mich.	89	(1)	312	.1	174,189	38.7
Wilson & Co., Inc.	89	(1)	312	.1	174,189	38.7
Hartford, Conn.	29,006	8.1	21,968	6.1	45,416	12.6
Swift & Co.	16,725	4.7	5,392	1.5	20,526	5.7
Armour & Co.	4,118	1.1	7,555	2.1	11,183	3.1
Morris & Co.	1,665	.5	714	.2	304	.1
Cudahy Packing Co.	6,498	1.8	8,307	2.3	13,403	3.7
Houston, Tex.	9,644	1.7	10,407	1.9	10,944	2.0
Swift & Co.	263	(1)	62	(1)	4,673	.9
Armour & Co.	1,036	.2	617	.1	.....	.....
Morris & Co.	6,769	1.2	6,680	1.2	.....	.....
Wilson & Co., Inc.	1,576	.3	3,048	.6	6,271	1.1
Indianapolis, Ind.	45,040	.6	75,885	1.0	62,289	.8
Swift & Co.	31	(1)	12	(1)	.....	.....
Armour & Co.	44,937	.6	75,668	1.0	62,289	.8
Morris & Co.	72	(1)	205	(1)	.....	.....

[1] Less than one-tenth of 1 per cent.

TABLE 24.—*Cold storage in cities with an estimated population of 100,000 or more—Space leased and occupied by the five larger packers, 1917–18*—Cont.
(For qualifying footnotes see p. 111.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Kansas City, Mo.[1]	3,190,054	14.2	5,460,369	24.3	4,733,943	21.1
Swift & Co.	1,549,723	6.9	2,050,997	9.1	1,516,789	6.7
Armour & Co.	609,891	2.7	689,887	3.1	979,573	4.4
Morris & Co.	180,336	.8	637,085	2.8	462,284	2.1
Wilson & Co., Inc.	280,937	1.3	934,942	4.2	626,380	2.8
Cudahy Packing Co.	569,167	2.5	1,147,458	5.1	1,148,917	5.1
Los Angeles, Calif.	139,057	2.8	427,223	8.7	414,368	8.4
Swift & Co.	13,888	.3	16,028	.3	22,438	.4
Armour & Co.	14,439	.3	28,024	.6	50,330	1.2
Morris & Co.	1,166	(2)	.....	.....	.....	.....
Wilson & Co., Inc.	46,211	.9	191,776	3.9	161,580	3.1
Cudahy Packing Co.	63,353	1.3	191,395	3.9	181,020	3.7
Louisville, Ky.	88,613	5.1	47,923	2.7	182,350	10.4
Swift & Co.	290	(2)	307	(2)	8,293	.5
Armour & Co.	87,774	5.0	46,925	2.7	174,057	9.9
Morris & Co.	.....	.....	2	(2)	.....	.....
Wilson & Co., Inc.	549	.1	689	(2)	.....	.....
Memphis, Tenn.	50,278	4.8	51,114	4.9	87,626	8.3
Swift & Co.	347	(2)	858	.1	12,432	1.2
Armour & Co.	9,418	.9	9,577	.9	24,292	2.3
Morris & Co.	16,315	1.6	9,483	.9	14,085	1.3
Wilson & Co., Inc.	3,151	.3	18,689	1.8	20,926	2.0
Cudahy Packing Co.	21,047	2.0	12,507	1.2	15,891	1.5
Milwaukee, Wis.	514,374	26.3	581,651	29.7	419,086	21.4
Swift & Co.	486,031	24.8	538,423	27.5	360,499	18.4
Armour & Co.	26,943	1.4	43,228	2.2	54,543	2.8
Wilson & Co., Inc.	1,400	.1	.....	.....	4,044	.2
Minneapolis, Minn.	90,223	4.6	86,637	4.4	175,394	8.9
Swift & Co.	57,178	2.9	75,285	3.8	98,395	5.0
Armour & Co.	27,223	1.4	3,394	.2	49,193	2.5
Morris & Co.	.....	.....	.....	.....	2,140	.1
Wilson & Co., Inc.	1,465	.1	6,380	.3	7,934	.4
Cudahy Packing Co.	4,357	.2	1,578	.1	17,732	.9
Nashville, Tenn.	27,085	2.0	12,361	.9	140,093	10.6
Swift & Co.	11,383	.8	2,811	.2	44,523	3.4
Armour & Co.	2,128	.2	313	(2)	.....	.....
Morris & Co.	5,500	.4	3,620	.3	23,148	1.7
Wilson & Co., Inc.	8,074	.6	6,617	.4	59,242	4.5
Cudahy Packing Co.	.....	.....	.....	.....	13,180	1.0
New Bedford, Mass.	390	.3	4,191	3.2	4,761	3.7
Swift & Co.	.....	.....	218	.1	223	.2
Armour & Co.	390	.3	2,557	2.0	4,538	3.5
Morris & Co.	.....	.....	1,416	1.1	.....	.....
Newark, N. J.[3]	24,685	7.3	37,080	10.9	36,035	10.6
Swift & Co.	21,833	6.4	36,465	10.7	35,678	10.5
Cudahy Packing Co.	2,852	.9	615	.2	357	.1
New Haven, Conn.	114,680	10.6	234,101	21.6	294,135	27.2
Swift & Co.	113,277	10.5	230,272	21.3	293,544	27.1
Armour & Co.	490	(2)	2,056	.2	70	(2)
Wilson & Co., Inc.	296	(2)	586	(2)	26	(2)
Cudahy Packing Co.	617	.1	1,187	.1	495	.1
New Orleans, La.	25,953	1.6	28,051	1.7	94,889	5.7
Swift & Co.	3,085	.2	5,924	.4	12,668	.8
Armour & Co.	4,393	.3	535	(2)	1,373	.1
Morris & Co.	13,980	.8	17,547	1.1	17,564	1.0
Wilson & Co., Inc.	4,495	.3	4,045	.2	63,284	3.8

[1] Includes Kansas City, Kans.
[2] Less than one-tenth of 1 per cent.
[3] One independent plant, with a capacity of 800,000 cubic feet, is tabulated under New York City, as its contents could not be segregated for Newark.

TABLE 24.—*Cold storage in cities with an estimated population of 100,000 or more—Space leased and occupied by the five larger packers, 1917–18*—Cont.
(For qualifying footnotes see p. 111.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
New York, N. Y.[1]	2,917,501	8.5	3,721,410	10.9	3,346,188	9.8
Swift & Co.	684,459	2.0	1,731,748	5.1	1,412,961	4.1
Armour & Co.	1,108,774	3.2	869,143	2.5	678,702	2.0
Morris & Co.	572,821	1.7	407,977	1.2	455,399	1.3
Wilson & Co., Inc.	269,648	.8	405,094	1.2	226,558	.7
Cudahy Packing Co.	281,799	.8	307,448	.9	574,368	1.7
Omaha, Nebr.	2,135,107	11.2	4,550,930	23.9	3,707,280	19.5
Swift & Co.	445,813	2.4	969,393	5.1	940,697	5.0
Armour & Co.	731,038	3.8	1,360,158	7.1	1,082,108	5.7
Morris & Co.	348,065	1.8	889,176	4.7	691,851	3.6
Wilson & Co., Inc.	76	(2)	6	(2)	6,930	(2)
Cudahy Packing Co.	610,115	3.2	1,332,197	7.0	985,694	5.2
Philadelphia, Pa.	263,265	3.2	316,752	3.8	421,448	5.1
Swift & Co.	60,799	.7	117,800	1.4	148,500	1.8
Armour & Co.	69,997	.9	97,502	1.1	162,619	2.0
Morris & Co.	18,566	.2	33,226	.4	35,903	.4
Wilson & Co., Inc.	60,799	.7	54,870	.7	31,600	.4
Cudahy Packing Co.	53,104	.7	13,354	.2	42,826	.5
Pittsburgh, Pa.	154,378	4.4	261,325	7.5	243,255	7.0
Swift & Co.	10,852	.3	31,982	.9	29,966	.9
Armour & Co.	128,372	3.7	194,525	5.6	205,824	5.9
Morris & Co.	8,620	.2	8,698	.3	2,862	.1
Wilson & Co., Inc.	4,116	.1	21,749	.6	3,953	.1
Cudahy Packing Co.	2,418	.1	4,371	.1	650	(2)
Portland, Oreg.	91,476	7.2	45,819	3.6	90,758	7.1
Swift & Co.	83,930	6.6	45,467	3.6	62,048	4.9
Armour & Co.	6,371	.5	310	(2)	27,010	2.1
Morris & Co.	775	.1	.....	.....	.....	.....
Cudahy Packing Co.	400	(2)	42	(2)	1,700	.1
Providence, R. I.	55,017	3.7	54,482	3.6	139,160	9.2
Swift & Co.	16,374	1.1	20,755	1.4	20,810	1.4
Armour & Co.	16,931	1.1	19,835	1.3	77,856	5.2
Morris & Co.	3,046	.2	1,520	.1	2,363	.1
Wilson & Co., Inc.	12,252	.8	4,737	.3	18,081	1.2
Cudahy Packing Co.	6,414	.5	7,635	.5	20,050	1.3
Reading, Pa.	736	.2	2,025	.6	8,534	2.4
Swift & Co.	600	.2	1,679	.5	8,434	2.4
Wilson & Co., Inc.	136	(2)	346	.1	100	(2)
Richmond, Va.	26,073	1.3	45,121	2.3	71,367	3.7
Swift & Co.	9,808	.5	16,557	.9	28,876	1.5
Armour & Co.	9,112	.5	14,385	.7	29,094	1.5
Morris & Co.	1,254	(2)	1,541	.1	.....	.....
Wilson & Co., Inc.	5,899	.3	12,638	.6	9,920	.5
Cudahy Packing Co.	.....	.....	.....	.....	3,477	.2
Rochester, N. Y.	31,597	1.9	16,846	1.0	43,134	2.5
Swift & Co.	28,763	1.7	7,050	.4	30,090	1.8
Armour & Co.	1,070	.1	3,207	.2	5,615	.3
Morris & Co.	212	(2)	.....	.....	.....	.....
Wilson & Co., Inc.	1,552	.1	6,589	.4	7,429	.4
St. Louis, Mo.[3]	2,972,140	19.6	4,597,733	30.3	3,981,869	26.2
Swift & Co.	999,631	6.6	2,029,098	13.4	1,637,977	10.8
Armour & Co.	1,357,488	8.9	1,307,325	8.6	1,430,866	9.4
Morris & Co.	319,343	2.1	1,135,512	7.5	758,828	5.0
Wilson & Co., Inc.	295,223	2.0	125,798	.8	120,320	.8
Cudahy Packing Co.	455	(2)	.....	.....	33,878	.2
St. Paul, Minn.	1,286,989	37.2	1,318,097	38.1	1,340,469	38.8
Swift & Co.	1,254,919	36.3	1,271,915	36.8	1,318,294	38.1
Armour & Co.	21,069	.6	38,784	1.1	9,798	.3
Morris & Co.	2,978	.1	15	(2)	2,040	.1
Wilson & Co., Inc.	2,059	(2)	4,748	.1	6,055	.2
Cudahy Packing Co.	5,964	.2	2,635	.1	4,282	.1

[1] Includes also Jersey City, N. J., and one independent plant at Newark, N. J., with a capacity of 800,000 cubic feet, the contents of which could not be segregated for Newark.
[2] Less than one-tenth of 1 per cent.
[3] Includes East St. Louis, Ill., and National City, Ill.

TABLE 24.—*Cold storage in cities with an estimated population of 100,000 or more—Space leased and occupied by the five larger packers, 1917–18*—Cont. (For qualifying footnotes see p. 111.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Salt Lake City, Utah	20,000	3.0	60,256	10.1	63,764	10.7
Cudahy Packing Co.	20,000	3.0	60,256	10.1	63,764	10.7
San Antonio, Tex.	13,420	5.3	7,954	3.1	14,813	5.8
Swift & Co.	39	(1)	.....	.....	2,688	1.1
Armour & Co.	7,879	3.1	7,010	2.7	9,479	3.7
Morris & Co.	2,615	1.0	.....	.....	.....	.....
Wilson & Co., Inc.	2,887	1.2	944	.4	2,646	1.0
San Francisco, Calif.[2]	330,258	5.6	429,262	7.3	520,837	8.9
Swift & Co.	300,438	5.1	325,155	5.5	431,394	7.4
Armour & Co.	13,959	.2	15,893	.3	54,516	.9
Morris & Co.	278	(1)	3,200	.1	4,860	.1
Wilson & Co., Inc.	7,122	.1	2,107	(1)	.....	.....
Cudahy Packing Co.	8,461	.2	82,907	1.4	30,067	.5
Scranton, Pa.	5,465	.7	23,738	2.8	60,327	7.2
Swift & Co.	.....	.....	6,814	.8	19,584	2.3
Armour & Co.	.....	.....	3,392	.4	758	.1
Morris & Co.	.....	.....	8,124	1.0	13,194	1.6
Wilson & Co., Inc.	5,465	.7	3,837	.4	17,122	2.0
Cudahy Packing Co.	.....	.....	1,571	.2	9,669	1.2
Seattle, Wash.	13,513	.3	6,736	.2	61,213	1.4
Swift & Co.	6,110	.1	520	(1)	21,445	.5
Armour & Co.	6,380	.2	4,000	.1	30,818	.7
Wilson & Co., Inc.	.....	.....	.....	.....	40	(1)
Cudahy Packing Co.	1,023	(1)	2,216	.1	8,910	.2
Spokane, Wash.	222,322	21.3	205,742	19.7	145,225	13.9
Swift & Co.	2,304	.2	.....	.....	1,581	.1
Armour & Co.	220,018	21.1	205,742	19.7	143,644	13.8
Springfield, Mass.	102,213	9.9	109,904	10.6	167,137	16.2
Swift & Co.	64,751	6.3	70,111	6.8	86,374	8.4
Armour & Co.	14,956	1.4	14,420	1.4	31,182	3.0
Morris & Co.	1,140	.1	2,280	.2	9,458	.9
Wilson & Co., Inc.	1,113	.1	2,354	.2	6,931	.7
Cudahy Packing Co.	20,253	2.0	20,739	2.0	33,192	3.2
Syracuse, N. Y.	173,100	12.6	87,165	6.3	130,960	9.5
Swift & Co.	20,133	1.5	43,813	3.2	7,699	.6
Armour & Co.	66,941	4.9	19,405	1.4	74,164	5.4
Morris & Co.	20,898	1.5	2,265	.1	5,282	.4
Wilson & Co., Inc.	14,499	1.0	.....	.....	14,373	1.0
Cudahy Packing Co.	50,629	3.7	21,682	1.6	29,442	2.1
Tacoma, Wash.	.....	.....	57	(1)	11,133	3.6
Swift & Co.	.....	.....	57	(1)	935	.3
Armour & Co.	.....	.....	.....	.....	10,198	3.3
Toledo, Ohio.	629	.3	17,756	8.3	54,339	25.3
Swift & Co.	405	.2	16,116	7.5	52,848	24.6
Armour & Co.	224	.1	1,443	.7	1,480	.7
Morris & Co.	.....	.....	173	.1	11	(1)
Wilson & Co., Inc.	.....	.....	24	(1)	.....	.....
Washington, D. C.	55,226	3.7	40,248	2.7	77,683	5.2
Swift & Co.	3,132	.2	4,111	.3	1,276	.1
Armour & Co.	26,138	1.7	10,585	.7	27,373	1.8
Morris & Co.	12,651	.9	3,323	.2	16,761	1.1
Wilson & Co., Inc.	9,224	.6	14,129	1.0	25,186	1.7
Cudahy Packing Co.	4,081	.3	8,100	.5	7,087	.5
Worcester, Mass.	98,774	7.9	141,013	11.3	261,211	21.0
Swift & Co.	77,247	6.2	124,627	10.0	225,232	18.1
Armour & Co.	10,757	.9	10,086	.8	26,761	2.2
Morris & Co.	4,295	.3	1,128	.1	1,631	.1
Wilson & Co., Inc.	.....	.....	.....	.....	448	(1)
Cudahy Packing Co.	6,475	.5	5,172	.4	7,139	.6

[1] Less than one-tenth of 1 per cent.

[2] Includes Oakland, Calif.

TABLE 25.[1]—*Cold storage in cities with an estimated population of 100,000 or more*[2]*—Space in which the five large meat packers were interested,*[3] *1917–18.*

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Albany, N. Y.	22,491	3.9	43,061	7.5	20,840	3.6
Swift & Co.	7,955	1.4	16,905	2.9	7,105	1.2
Armour & Co.	11,397	2.0	20,959	3.6	5,970	1.1
Morris & Co.	2,101	.3	225	.1	4,796	.8
Wilson & Co., Inc.	1,038	.2	4,972	.9	2,969	.5
Atlanta, Ga.	23,805	4.9	35,065	7.3	58,724	12.2
Swift & Co.	6,263	1.3	5,140	1.1	9,301	1.9
Armour & Co.	4,061	.8	4,104	.8	4,617	1.0
Morris & Co.	11,804	2.5	6,290	1.3	19,718	4.1
Wilson & Co., Inc.	1,178	.2	17,818	3.7	24,339	5.1
Cudahy Packing Co.	499	.1	1,713	.4	749	.1
Baltimore, Md.	31,115	1.4	21,093	.9	57,015	2.6
Swift & Co.	16,662	.7	4,752	.2	20,411	.9
Armour & Co.	11,911	.6	15,705	.7	35,815	1.6
Morris & Co.	1,481	.1	258	(4)	500	.1
Wilson & Co., Inc.	1,061	.1	378	(4)	289	(4)
Birmingham, Ala.	230,491	25.6	224,367	24.9	274,877	30.5
Swift & Co.	1,116	.1	994	.1	27,878	3.1
Armour & Co.	172,900	19.2	172,900	19.2	180,819	20.1
Morris & Co.	4,528	.5	.....	.....	8,845	1.0
Wilson & Co., Inc.	1,418	.2	.....	.....	5,830	.6
Cudahy Packing Co.	50,529	5.6	50,473	5.6	51,505	5.7
Boston, Mass.[5]	10,269,914	56.2	10,056,740	55.0	11,671,870	63.9
Swift & Co.	8,044,567	44.0	8,344,123	45.7	8,631,588	47.2
Armour & Co.	2,072,900	11.4	1,534,936	8.4	2,833,392	15.5
Morris & Co.	59,814	.3	132,891	.7	105,762	.6
Wilson & Co., Inc.	16,978	.1	26,844	.1	28,498	.2
Cudahy Packing Co.	75,655	.4	17,946	.1	72,630	.4
Bridgeport, Conn.	.....	.....	.....	.....	2,500	4.5
Cudahy Packing Co.	.....	.....	.....	.....	2,500	4.5
Buffalo, N. Y.	652,789	13.6	1,023,475	21.3	203,993	4.3
Swift & Co.	15,380	.3	157,374	3.3	50,938	1.1
Armour & Co.	5,174	.1	6,101	.1	22,061	.5
Morris & Co.	318,152	6.6	316,438	6.6	32,004	.7
Wilson & Co., Inc.	297,843	6.2	543,562	11.3	98,373	2.0
Cudahy Packing Co.	16,240	.4	.....	.....	.....	.....
Chicago, Ill.	70,649,183	72.8	70,949,167	73.1	69,610,478	71.7
Swift & Co.	22,775,930	23.5	23,061,576	23.7	22,356,292	23.0
Armour & Co.	25,559,879	26.3	25,453,187	26.2	25,376,780	26.1
Morris & Co.	13,389,380	13.8	13,084,510	13.5	12,564,606	13.0
Wilson & Co., Inc.	8,707,400	9.0	9,086,672	9.4	8,811,816	9.1
Cudahy Packing Co.	216,594	.2	263,222	.3	500,984	.5
Cincinnati, Ohio.	3,353	.2	4,351	.2	7,685	.4
Swift & Co.	3,211	.2	1,680	.1	7,606	.4
Armour & Co.	100	(4)	2,671	.1	79	(4)
Morris & Co.	42	(4)	.....	.....	.....	.....
Cleveland, Ohio.	806,847	4.7	803,867	4.7	829,048	4.8
Swift & Co.	795,418	4.7	792,651	4.6	811,909	4.7
Armour & Co.	2,588	(4)	2,197	(4)	1,523	(4)
Morris & Co.	5,352	(4)	496	(4)	213	(4)
Wilson & Co., Inc.	3,489	(4)	8,523	.1	15,403	.1
Columbus, Ohio.	140,816	12.8	145,915	13.3	110,026	10.0
Swift & Co.	1,561	.1	1,752	.1	857	.1
Armour & Co.	30,039	2.7	27,066	2.5	.....	.....
Morris & Co.	108,577	9.9	114,923	10.5	103,765	9.4
Wilson & Co., Inc.	639	.1	2,174	.2	5,404	.5

[1] See Exhibit VI, pp. 308, 309.

[2] No public cold-storage plants were reported from the following cities: Camden, N. J., Lawrence, Mass., Lynn, Mass., Paterson, N. J., Schenectady, N. Y., or Youngstown, Ohio.

[3] Includes all space operated by the Big Five and in plants not so operated the space leased or occupied without lease by them. No cold-storage space was reported as operated, occupied, or leased by the Big Five in plants in the following cities: Dayton, Ohio, Trenton, N. J., or Yonkers, N. Y.

[4] Less than one-tenth of 1 per cent.

[5] Boston, Mass., includes Cambridge and Somerville.

TABLE 25.—*Cold storage in cities with an estimated population of 100,000 or more—Space in which the five large meat packers were interested, 1917–18*—Continued. (For qualifying footnotes see p. 116.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Dallas, Tex.	490,292	39.1	487,213	38.9	511,444	40.8
Swift & Co.	3,258	.2	192	(1)	11,799	.9
Armour & Co.	487,034	38.9	487,021	38.9	490,045	39.1
Wilson & Co., Inc.	.....	.....	.....	.....	9,600	.8
Denver, Colo.	2,627,013	61.6	2,638,773	61.9	2,627,013	61.6
Swift & Co.	1,721,750	40.4	1,733,510	40.7	1,721,750	40.4
Armour & Co.	905,263	21.2	905,263	21.2	905,263	21.2
Des Moines, Iowa	105,307	8.0	104,126	8.0	103,743	7.9
Swift & Co.	103,558	7.9	103,558	7.9	103,558	7.9
Armour & Co.	1,749	.1	568	.1	123	(1)
Morris & Co.	.....	.....	.....	.....	62	(1)
Detroit, Mich.	80,116	4.0	461,046	22.8	115,451	5.7
Swift & Co.	10,758	.5	103,152	5.1	23,563	1.2
Armour & Co.	1,791	.1	84,482	4.2	18,786	.9
Morris & Co.	38,210	1.9	165,494	8.2	25,292	1.2
Wilson & Co., Inc.	15,314	.8	93,875	4.6	33,746	1.7
Cudahy Packing Co.	14,043	.7	14,043	.7	14,064	.7
Fall River, Mass.	744	2.2	63	.2	.....	.....
Armour & Co.	744	2.2	63	.2	.....	.....
Fort Worth, Tex.	6,983,219	90.6	6,977,619	90.5	6,982,419	90.6
Swift & Co.	3,167,600	41.1	3,162,000	41.0	3,166,800	41.1
Armour & Co.	3,815,619	49.5	3,815,619	49.5	3,815,619	49.5
Grand Rapids, Mich.	89	(1)	312	.1	174,189	38.7
Wilson & Co., Inc.	89	(1)	312	.1	174,189	38.7
Hartford, Conn.	57,243	15.9	50,205	14.0	73,653	20.5
Swift & Co.	44,962	12.5	33,629	9.4	48,763	13.6
Armour & Co.	4,118	1.1	7,555	2.1	11,183	3.1
Morris & Co.	1,665	.5	714	.2	304	.1
Cudahy Packing Co.	6,498	1.8	8,307	2.3	13,403	3.7
Houston, Tex.	76,898	13.7	76,898	13.7	77,319	13.8
Swift & Co.	71,048	12.7	71,048	12.7	71,048	12.7
Morris & Co.	5,850	1.0	5,850	1.0	.....	.....
Wilson & Co., Inc.	.....	.....	.....	.....	6,271	1.1
Indianapolis, Ind.	219,159	2.9	243,671	3.2	236,502	3.1
Swift & Co.	31	(1)	12	(1)	.....	.....
Armour & Co.	219,056	2.9	243,454	3.2	236,502	3.1
Morris & Co.	72	(1)	205	(1)	.....	.....
Kansas City, Mo.[2]	20,832,190	92.8	21,031,953	93.7	21,228,247	94.6
Swift & Co.	4,908,085	21.8	4,901,816	21.8	5,038,518	22.4
Armour & Co.	3,499,435	15.6	3,499,435	15.6	3,499,435	15.6
Morris & Co.	2,783,272	12.4	2,783,272	12.4	2,795,620	12.5
Wilson & Co., Inc.	4,550,000	20.3	4,550,207	20.3	4,550,000	20.3
Cudahy Packing Co.	5,091,398	22.7	5,297,223	23.6	5,344,674	23.8
Los Angeles, Calif.	1,231,248	25.0	1,389,940	28.2	1,355,269	27.5
Swift & Co.	123,656	2.5	128,709	2.6	136,356	2.8
Armour & Co.	14,439	.3	28,024	.6	59,330	1.2
Morris & Co.	1,166	(1)	.....	.....	.....	.....
Wilson & Co., Inc.	427,179	8.7	548,250	11.1	444,314	9.0
Cudahy Packing Co.	664,808	13.5	684,957	13.9	715,269	14.5
Louisville, Ky.	423,760	24.2	423,342	24.2	432,205	24.7
Swift & Co.	290	(1)	307	(1)	8,293	.5
Armour & Co.	422,921	24.1	422,344	24.1	423,912	24.2
Morris & Co.	.....	.....	2	(1)	.....	.....
Wilson & Co., Inc.	549	.1	689	.1	.....	.....
Lowell, Mass.	26,460	100.0	26,460	100.0	26,460	100.0
Swift & Co.	26,460	100.0	26,460	100.0	26,460	100.0
Memphis, Tenn.	89,481	8.5	91,065	8.7	125,004	11.9
Swift & Co.	347	(1)	858	.1	12,432	1.2
Armour & Co.	48,621	4.6	49,528	4.7	61,670	5.9

[1] Less than one-tenth of 1 per cent.

[2] Includes Kansas City, Kans.

TABLE 25.—*Cold storage in cities with an estimated population of 100,000 or more—Space in which the five large meat packers were interested, 1917–18*—Continued. (For qualifying footnotes see p. 116.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Memphis, Tenn.—Continued.						
Morris & Co.	16,315	1.6	9,483	0.9	14,085	1.3
Wilson & Co., Inc.	3,151	.3	18,689	1.8	20,926	2.0
Cudahy Packing Co.	21,047	2.0	12,507	1.2	15,891	1.5
Milwaukee, Wis.	822,492	42.0	869,667	44.4	786,126	40.1
Swift & Co.	794,149	40.5	826,439	42.2	727,539	37.1
Armour & Co.	26,943	1.4	43,228	2.2	54,543	2.8
Wilson & Co., Inc.	1,400	.1	.....	.....	4,044	.2
Minneapolis, Minn.	90,223	4.6	86,637	4.4	175,394	8.9
Swift & Co.	57,178	2.9	75,285	3.8	98,395	5.0
Armour & Co.	27,223	1.4	3,394	.2	49,193	2.5
Morris & Co.	.....	.....	.....	.....	2,140	.1
Wilson & Co., Inc.	1,465	.1	6,380	.3	7,934	.4
Cudahy Packing Co.	4,357	.2	1,578	.1	17,732	.9
Nashville, Tenn.	27,085	2.0	12,361	.9	140,093	10.6
Swift & Co.	11,383	.8	2,811	.2	44,523	3.4
Armour & Co.	2,128	.2	313	(1)	.....	.....
Morris & Co.	5,500	.4	3,620	.3	23,148	1.7
Wilson & Co., Inc.	8,074	.6	5,617	.4	59,242	4.5
Cudahy Packing Co.	.....	.....	.....	.....	13,180	1.0
New Bedford, Mass.	390	.3	4,191	3.2	4,761	3.7
Swift & Co.	.....	.....	218	.1	223	.2
Armour & Co.	390	.3	2,557	2.0	4,638	3.5
Morris & Co.	.....	.....	1,416	1.1	.....	.....
Newark, N. J.[2]	269,232	79.1	269,232	79.1	269,232	79.1
Swift & Co.	247,672	72.8	247,672	72.8	247,672	72.8
Cudahy Packing Co.	21,560	6.3	21,560	6.3	21,560	6.3
New Haven, Conn.	614,840	56.8	621,300	57.4	618,628	57.2
Swift & Co.	613,437	56.7	617,471	57.1	618,037	57.1
Armour & Co.	490	(1)	2,056	.2	70	(1)
Wilson & Co., Inc.	296	(1)	586	(1)	26	(1)
Cudahy Packing Co.	617	.1	1,187	.1	495	.1
New Orleans, La.	235,301	14.1	247,257	14.8	313,257	18.7
Swift & Co.	3,085	.2	5,924	.4	12,668	.8
Armour & Co.	219,741	13.1	219,741	13.1	219,741	13.1
Morris & Co.	7,980	.5	17,547	1.1	17,564	1.0
Wilson & Co., Inc.	4,495	.3	4,045	.2	63,284	3.8
New York, N. Y. (Greater)[3]	8,405,943	24.6	8,978,512	26.2	8,683,063	25.4
Swift & Co.	1,562,677	4.6	2,402,489	7.0	2,104,863	6.1
Armour & Co.	2,556,838	7.5	2,334,458	6.8	2,146,024	6.3
Morris & Co.	1,595,673	4.7	1,403,963	4.1	1,466,205	4.3
Wilson & Co., Inc.	2,374,028	6.9	2,485,554	7.3	2,328,952	6.8
Cudahy Packing Co.	316,727	.9	352,048	1.0	637,019	1.9
Omaha, Nebr.	18,072,949	94.9	18,501,068	97.2	18,135,441	95.2
Swift & Co.	4,263,116	22.4	4,355,239	22.9	4,296,722	22.6
Armour & Co.	4,339,976	22.8	4,339,976	22.8	4,341,510	22.8
Morris & Co.	3,747,006	19.7	3,809,211	20.0	3,691,041	19.4
Wilson & Co., Inc.	76	(1)	6	(1)	6,930	(1)
Cudahy Packing Co.	5,722,775	30.0	5,996,636	31.5	5,799,238	30.4
Philadelphia, Pa.	424,451	5.2	449,794	5.5	577,247	7.0
Swift & Co.	211,075	2.6	250,620	3.0	302,642	3.7
Armour & Co.	69,430	.8	97,402	1.2	161,921	2.0
Morris & Co.	30,043	.4	33,548	.4	38,258	.4
Wilson & Co., Inc.	60,799	.7	54,870	.7	31,600	.4
Cudahy Packing Co.	53,104	.7	13,354	.2	42,826	.5
Pittsburgh, Pa.	1,463,923	42.0	1,503,682	43.2	1,482,431	42.6
Swift & Co.	125,094	3.6	140,790	4.1	136,786	4.0
Armour & Co.	1,323,675	38.0	1,328,074	38.1	1,338,180	38.4

[1] Less than one-tenth of 1 per cent.

[2] One independent plant, with a capacity of 800,000 cubic feet, is tabulated under New York City, as its contents could not be segregated for Newark.

[3] Includes also Jersey City, N. J., and one independent plant at Newark, N. J., with a capacity of 800,000 cubic feet, the contents of which could not be segregated for Newark.

TABLE 25.—*Cold storage in cities with an estimated population of 100,000 or more—Space in which the five large meat packers were interested, 1917–18*—Continued. (For qualifying footnotes see p. 116.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Pittsburgh, Pa.—Continued.						
Morris & Co.	8,620	0.2	8,698	0.3	2,862	0.1
Wilson & Co., Inc.	4,116	.1	21,749	.6	3,953	.1
Cudahy Packing Co.	2,418	.1	4,371	.1	650	(1)
Portland, Oreg.	138,507	10.8	133,329	10.4	136,469	10.7
Swift & Co.	135,432	10.6	133,329	10.4	134,769	10.6
Armour & Co.	2,380	.2	.....	.....	1,700	.1
Morris & Co.	695	(1)	.....	.....	.....	.....
Providence, R. I.	55,017	3.7	54,482	3.6	139,160	9.2
Swift & Co.	16,374	1.1	20,755	1.4	20,810	1.4
Armour & Co.	16,931	1.1	19,835	1.3	77,856	5.2
Morris & Co.	3,046	.2	1,520	.1	2,363	.1
Wilson & Co., Inc.	12,252	.8	4,737	.3	18,081	1.2
Cudahy Packing Co.	6,414	.5	7,635	.5	20,050	1.3
Reading, Pa.	736	.2	2,025	.6	8,534	2.4
Swift & Co.	600	.2	1,679	.5	8,434	2.4
Wilson & Co., Inc.	136	(1)	346	.1	100	(1)
Richmond, Va.	26,073	1.3	45,121	2.3	71,367	3.7
Swift & Co.	9,808	.5	16,557	.9	28,876	1.5
Armour & Co.	9,112	.5	14,385	.7	29,094	1.5
Morris & Co.	1,254	(1)	1,541	.1	.....	.....
Wilson & Co., Inc.	5,899	.3	12,638	.6	9,920	.5
Cudahy Packing Co.	.....	.....	.....	.....	3,477	.2
Rochester, N. Y.	87,376	5.2	84,934	5.0	97,855	5.8
Swift & Co.	84,542	5.0	75,138	4.4	84,811	5.0
Armour & Co.	1,070	.1	3,207	.2	5,615	.3
Morris & Co.	212	(1)	.....	.....	.....	.....
Wilson & Co., Inc.	1,552	.1	6,589	.4	7,429	.5
St. Louis, Mo. [2]	10,625,622	70.0	11,321,127	74.6	10,804,972	71.2
Swift & Co.	3,089,438	20.4	3,633,158	23.9	3,268,577	21.5
Armour & Co.	3,964,366	26.1	3,925,207	25.9	3,939,847	26.0
Morris & Co.	3,276,140	21.6	3,636,964	24.0	3,442,350	22.7
Wilson & Co., Inc.	295,223	1.9	125,798	.8	120,320	.8
Cudahy Packing Co.	455	(1)	.....	.....	33,878	.2
St. Paul, Minn.	2,209,139	63.9	2,299,664	66.5	2,283,634	66.1
Swift & Co.	2,177,069	63.0	2,253,482	65.2	2,261,459	65.4
Armour & Co.	21,069	.6	38,784	1.1	9,798	.3
Morris & Co.	2,978	.1	15	(1)	2,040	.1
Wilson & Co., Inc.	2,059	(1)	4,748	.1	6,055	.2
Cudahy Packing Co.	5,964	.2	2,635	.1	4,282	.1
Salt Lake City, Utah	397,560	66.5	407,816	68.2	401,324	67.1
Cudahy Packing Co.	397,560	66.5	407,816	68.2	401,324	67.1
San Antonio, Tex.	36,553	14.4	31,383	12.3	34,377	13.5
Swift & Co.	39	(1)	.....	.....	2,688	1.1
Armour & Co.	31,012	12.2	30,439	11.9	29,043	11.4
Morris & Co.	2,615	1.0	.....	.....	.....	.....
Wilson & Co., Inc.	2,887	1.2	944	.4	2,646	1.0
San Francisco, Calif. [3]	1,145,111	19.5	1,225,831	20.8	1,257,136	21.4
Swift & Co.	1,115,291	19.0	1,121,724	19.1	1,167,693	19.9
Armour & Co.	13,959	.2	15,893	.3	54,516	.9
Morris & Co.	278	(1)	3,200	(1)	4,860	.1
Wilson & Co., Inc.	7,122	.1	2,107	(1)	.....	.....
Cudahy Packing Co.	8,461	.2	82,907	1.4	30,067	.5
Scranton, Pa.	5,465	.7	23,738	2.8	60,327	7.2
Swift & Co.	.....	.....	6,814	.8	19,584	2.3
Armour & Co.	.....	.....	3,392	.4	758	.1
Morris & Co.	.....	.....	8,124	1.0	13,194	1.6
Wilson & Co., Inc.	5,465	.7	3,837	.4	17,122	2.0
Cudahy Packing Co.	.....	.....	1,571	.2	9,669	1.2

[1] Less than one-tenth of 1 per cent.
[2] Includes East St. Louis, Ill., and National City, Ill.
[3] Includes Oakland, Calif.

TABLE 25.—*Cold storage in cities with an estimated population of 100,000 or more—Space in which the five large meat packers were interested, 1917–18*—Continued. (For qualifying footnotes see p. 116.)

	Nov. 30, 1917.		Mar. 31, 1918.		July 31, 1918.	
	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.	Cubic feet.	Per cent of total capacity.
Seattle, Wash.	77,265	1.8	75,532	1.7	122,448	2.8
Swift & Co.	69,862	1.6	69,316	1.6	82,680	1.9
Armour & Co.	6,380	.2	4,000	.1	30,818	.7
Wilson & Co., Inc.	.....	.....	.....	.....	40	(1)
Cudahy Packing Co.	1,023	(1)	2,216	(1)	8,910	.2
Spokane, Wash.	750,084	71.8	736,181	70.5	737,503	70.6
Swift & Co.	2,304	.2	.....	.....	1,581	.1
Armour & Co.	747,780	71.6	736,181	70.5	735,922	70.5
Springfield, Mass.	161,437	15.6	162,913	15.8	231,977	22.5
Swift & Co.	123,975	12.0	123,120	12.0	151,214	14.7
Armour & Co.	14,956	1.4	14,420	1.4	31,182	3.0
Morris & Co.	1,140	.1	2,280	.2	9,458	.9
Wilson & Co., Inc.	1,113	.1	2,354	.2	6,931	.7
Cudahy Packing Co.	20,253	2.0	20,739	2.0	33,192	3.2
Syracuse, N. Y.	237,653	17.2	151,589	11.0	194,937	14.1
Swift & Co.	84,686	6.1	108,237	7.8	71,676	5.2
Armour & Co.	66,941	4.9	19,405	1.4	74,164	5.4
Morris & Co.	20,898	1.5	2,265	.2	5,282	.4
Wilson & Co., Inc.	14,499	1.0	.....	.....	14,373	1.0
Cudahy Packing Co.	50,629	3.7	21,682	1.6	29,442	2.1
Tacoma, Wash.	.....	.....	57	(1)	11,133	3.6
Swift & Co.	.....	.....	57	(1)	935	.3
Armour & Co.	.....	.....	.....	.....	10,198	3.3
Toledo, Ohio.	629	.3	17,756	8.3	54,339	25.3
Swift & Co.	405	.2	16,116	7.5	52,848	24.6
Armour & Co.	224	.1	14,443	.7	1,480	.7
Morris & Co.	.....	.....	173	.1	11	(1)
Wilson & Co., Inc.	.....	.....	24	(1)	.....	.....
Washington, D. C.	55,226	3.7	40,248	2.7	77,683	5.2
Swift & Co.	3,132	.2	4,111	.3	1,276	.1
Armour & Co.	26,138	1.7	10,585	.7	27,373	1.8
Morris & Co.	12,651	.9	3,323	.2	16,761	1.1
Wilson & Co., Inc.	9,224	.6	14,129	1.0	25,186	1.7
Cudahy Packing Co.	4,081	.3	8,100	.5	7,087	.5
Worcester, Mass.	434,874	35.0	429,073	34.5	524,741	42.2
Swift & Co.	413,347	33.3	412,687	33.2	488,762	39.3
Armour & Co.	10,757	.9	10,086	.8	26,761	2.2
Morris & Co.	4,295	.3	1,128	.1	1,631	.1
Wilson & Co., Inc.	.....	.....	.....	.....	448	(1)
Cudahy Packing Co.	6,475	.5	5,172	.4	7,139	.6

[1] Less than one-tenth of 1 per cent.

TABLE 26.—*Cold-storage plants operated by and under the name of Swift & Co.*

Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
		Private or public.	Class of commodities.[1]
Andalusia, Ala	224,143	Private	Meat, lard.
Los Angeles, Calif	40,057	do	Produce, meat, lard.
San Francisco, Calif	54,336	do	Produce.
Denver, Colo	1,721,750	do	Meat, lard.
Jacksonville, Fla	85,926	do	Meat.
Tampa, Fla	33,488	do	Produce, meat.
Moultrie, Ga	584,880	do	Produce, meat, lard.
Chicago (South Water Street), Ill	44,375	do	Produce, meat.
Chicago (U. S. Yards), Ill	13,165,800	do	Produce, meat, lard.
Jacksonville, Ill	18,200	do	Produce.
National City, Ill	1,031,993	do	Produce, meat, lard.
Clinton, Iowa	390,760	Combined	Produce, meat, fruit.
Creston, Iowa	100,000	Private	Produce, meat.
Des Moines, Iowa	103,558	do	Do.
Keokuk, Iowa	128,129	do	Do.
Sioux City, Iowa	97,057	do	Meat, lard.
Kansas City, Kans	4,899,495	do	Produce, meat, lard, fish.
Brockton, Mass	15,632	do	Produce, meat, lard.
Lowell, Mass	26,460	do	Not reported.
Alma, Mich	86,916	do	Produce.
St. Paul, Minn	2,152,814	do	Produce, meat, lard.
St. Joseph, Mo	4,532,311	do	Do.
St. Louis, Mo	1,630,485	do	Produce, meat.
Omaha, Nebr	4,145,724	do	Produce, meat, lard.
Harrison, N. J	1,266	do	Meat.
Jersey City, N. J	701,463	do	Produce, meat, lard.
Brooklyn, N. Y	40,557	Combined	Produce, meat.
Brooklyn (Williamsburg freezer), N. Y	1,674	Private	Meat.
Cuba, N. Y	28,000	Combined	Produce.
New York (East side plant), N. Y	15,640	Private	Produce, meat.
New York (Westchester Market), N. Y	555,804	do	Meat.
Syracuse, N. Y	68,658	do	Produce, meat, lard.
Cleveland, Ohio	787,068	do	Meat, lard.
Lima, Ohio	77,589	do	Produce.
Oklahoma City, Okla	33,792	do	Produce, meat, lard.
Harrisburg, Pa	120,000	do	Produce.
Philadelphia, Pa	157,094	Combined	Produce, meat.
Pittsburgh, Pa	116,728	Private	Do.
Woonsocket, R. I	32,650	do	Produce, meat, lard.
Fort Worth, Tex	3,162,000	do	Do.
Houston, Tex	71,048	Combined	Produce, meat.
Norfolk, Va	138,000	Private	Not reported.
Seattle, Wash	69,316	do	Produce.
Total (43 plants)	41,492,606		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.

TABLE 27.—*Cold-storage plants operated by companies controlled by Swift & Co.*

Company.			Plant.			
Name.	Address.	Per cent of voting stock owned by Swift interests.	Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
					Private or public.	Class of commodities.[1]
Oakland Meat & Packing Co	Oakland, Calif.	[2] [3]	Emeryville, Calif.	137,912	Private	Meat.
Western Meat Co	San Francisco, Calif.	[4] [3]	Fresno, Calif.	9,600	do	Not reported.
Omaha Hotel Supply Co	Los Angeles, Calif.	100	Los Angeles, Calif.	75,500	do	Produce, meat.
Western Meat Co	San Francisco, Calif.	[4] [3]	Sacramento, Calif.	9,800	do	Produce.
Do	do	[4] [3]	San Francisco, Calif.	888,800	do	Produce, meat, lard, fruit.
Do	do	[4] [3]	Oakland, Calif.	149,900	do	Produce, meat.
Do	do	[4] [3]	San Jose, Calif.	15,400	do	Not reported.
H. L. Handy Co	Springfield, Mass.	60	Hartford, Conn.	28,237	do	Produce.
The Sperry & Barnes Co	New Haven, Conn.	[3] 85	New Haven, Conn.	599,685	do	Meat, lard.
W. F. Priebe Co	Chicago, Ill.	100	Aledo, Ill. (T. W. Winders)	5,200	do	Produce.
Do	do	100	Bushnell, Ill. (Martin Schulze)	12,861	do	Do.
Libby, McNeill & Libby (Me.)	do	[5] 99.8	Chicago, Ill.	1,209,000	do	Produce, meat, lard.
G. H. Hammond Co	do	100	do	6,360,220	Combined	Produce, meat, lard, fish.
Omaha Packing Co	do	100	do	1,331,600	Private	Meat, lard.
W. F. Priebe Co	do	100	Lanark, Ill. (W. A. Schwartz Prov. Co.)	5,400	do	Produce.
Do	do	100	Monmouth, Ill. (W. H. Schreitling)	6,877	do	Do.
Do	do	100	Princeton, Ill. (Frank Grampp Co.)	14,400	do	Do.
Do	do	100	Atlantic, Iowa (Atlantic Prov. Co.)	21,470	do	Do.
Do	do	100	Carroll, Iowa (W. B. Parrott Co.)	9,004	do	Do.
Do	do	100	Hampton, Iowa (W. F. Priebe Co.)	6,486	do	Do.
Do	do	100	Manning, Iowa (Manning Prov. Co.)	7,085	do	Do.
John P. Squire & Co. (Me.)	Cambridge, Mass.	[3] 93	Portland, Me.	12,000	do	Produce, meat, lard.
Clinton Market & Provision Co	Boston, Mass.	[6]	Boston, Mass.	15,782	do	Meat, lard.
E. C. Swift & Co	do	[6]	do	81,805	do	Produce, meat, lard, fish.
G. F. Swift & Co	do	[6]	do	11,231	do	Meat, lard.
Swift Beef Co	do	67	do	13,088	do	Produce, meat, lard.
Vermont Supply Co	do	[7]	do	6,116	do	Produce.
Butchers' Slaughtering & Melting Association.	Brighton, Mass.	[8] [3]	Brighton, Mass.	183,150	Public	Meat.
John P. Squire & Co. (Me.)	Cambridge, Mass.	[3] 93	Cambridge, Mass.	4,133,560	Combined	Produce, meat, lard.
Springfield Provision Co	Chicopee, Mass.	[3] 75	Chicopee, Mass.	765,700	Private	Do.
Swift Coates Co	Greenfield, Mass.	[9] 50	Greenfield, Mass.	22,100	do	Do.
John P. Squire & Co., Inc. (Mass.)	Holyoke, Mass.	[10]	Holyoke, Mass.	76,121	Combined	Produce, meat.
H. L. Handy Co	Springfield, Mass.	60	Northampton, Mass.	7,425	Private	Not reported.
New England Dressed Meat & Wool Co	Boston, Mass.	[3] 53	Somerville, Mass.	417,475	Combined	Meat, lard.
North Packing & Provision Co	do	[3] 77	do	3,109,165	Private	Do.
H. L. Handy Co	Springfield, Mass.	60	Springfield, Mass.	67,970	do	Produce, meat, lard, fish.

Geo. Nye Co.	do	50	do	55,000	Combined	Meat, produce.
White, Pevey & Dexter Co.	Worcester, Mass.	[3] 93	Worcester, Mass.	407,320	Private	Meat, lard.
W. F. Priebe Co.	Chicago, Ill.	100	Waseco, Minn. (W. F. Priebe Co.)	383	do	Produce.
St. Joseph Warehouse & Cold Storage Co.	South St. Joseph, Mo.	[11]	St. Joseph, Mo.	292,831	Public	Produce, meat, lard.
Nevada Packing Co.	Reno, Nev.	[12] [3]	Reno, Nev.	219,677	Private	Do.
Van Wagenen & Schickhaus Co.	Newark, N. J.	100	Newark, N. J.	247,672	do	Meat, lard.
Metropolitan Hotel Supply Co.	New York, N. Y.	100	New York, N. Y.	30,127	do	Produce, meat, lard.
United Dressed Beef Co.	do	100	do	18,193	do	Meat.
F. & C. Crittenden Co.	Rochester, N. Y.	50	Rochester, N. Y.	73,300	do	Produce, meat, lard.
Union Meat Co.	Portland, Oreg.	100	Portland, Oreg.	130,197	Combined	Produce, meat.
Wilson & Rogers.	Philadelphia, Pa.	[11]	Philadelphia, Pa.	8,736	Private	Meat.
John P. Squire & Co. (Me.)	Cambridge, Mass.	[3] 93	Rutland, Vt.	80,895	Combined	Produce, meat, lard, fruit.
Plankinton Packing Co.	Milwaukee, Wis.	100	Milwaukee, Wis.	691,175	Private	Meat.
Total (49 plants)				22,082,631		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.
[2] 100 per cent owned by Western Meat Co. See Note [4].
[3] Family interests.
[4] Swift family interests own 44.5 per cent; adding trusted employees' stock and including proxies not elsewhere counted, the percentage of control would be 52.89.
[5] It is understood this stock was distributed pro rata to the stockholders of Swift & Co.
[6] Trade name of Swift Beef Co., in which Swift & Co. owns 67 per cent.
[7] 100 per cent owned by G. H. Hammond Co., in which Swift & Co. owns 100 per cent.
[8] 99.9 per cent owned by the New England Rendering Co., in which the Consolidated Rendering Co. owns 51 per cent. The Swift family owns 77 per cent of the stock of the Consolidated Rendering Co.
[9] Proxies for remaining 50 per cent of stock are given to a Swift agent by the Coates interests.
[10] 100 per cent owned by John P. Squire & Co. (Me.), in which the Swift family owns 93 per cent.
[11] 100 per cent owned by Libby, McNeill & Libby, in which Swift & Co. owns 99.8 per cent. See Note [5].
[12] 100 per cent owned by Western Meat Co. See Note [4].

TABLE 28.—*Cold-storage plants operated by and under the name of Armour & Co.*

Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
		Private or public.	Class of commodities.[1]
Birmingham, Ala	172,900	Private	Produce, meat, lard.
Waterbury, Conn	161,380	do[2]	Do.
Jacksonville, Fla	406,932	do	Meat, lard, produce.
Chicago, Ill	17,367,587	do	Fruit, produce, meat, lard
National City, Ill	3,853,498	do	Produce, meat, lard.
Indianapolis, Ind	186,465	do	Meat, lard.
Rochester, Ind	49,604	do	Produce.
Sioux City, Iowa	2,666,556	do	Produce, meat.
Kansas City, Kans	730,569	Combined	Produce.
Louisville, Ky	415,516	Private	Produce, meat.
Alexandria, La	15,900	do	Fruit, produce, meat, lard.
Lake Charles, La	2,160	do	Not reported.
Monroe, La	4,664	do	Produce.
New Orleans, La	219,741	Combined	Fruit, produce, meat, lard, fish, vegetables.
Shreveport, La	30,870	Private	Fruit, produce, meat, lard.
Owosso, Mich	72,340	do	Produce.
Omaha, Nebr	4,339,976	Combined	Produce, meat, lard, fruit.
Jersey City, N. J	389,587	Private	Meat, lard.
Passaic, N. J	150,287	do	Produce, meat, lard.
Brooklyn (197 Fort Green Place), N. Y	163,916	do	Fruit, produce, meat, lard.
Brooklyn (Sixth Street), N. Y	115,457	do	Lard, meat, produce, fruit.
Brooklyn (162 Fort Green Place), N. Y	18,835	do	Lard, meat.
Brooklyn (Thirty-ninth Street), N. Y	38,095	do	Produce, meat, lard.
New York City (Armour Terminal Freezer), N. Y.	274,976	do	Produce, meat.
Pittsburgh, Pa	63,197	do	Fruit, produce, meat, lard.
Memphis, Tenn	45,079	do	Fruit, lard, meat, produce.
Fort Worth, Tex	3,815,619	do	Produce, meat, lard.
San Antonio, Tex	27,123	do	Produce, meat.
Spokane, Wash	734,581	do	Meat, lard.
Total (29 plants)	36,472,864		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.

[2] Except for unexpired leases.

TABLE 29.—*Cold-storage plants operated by companies controlled by Armour & Co.*

Company.			Plant.			
Name.	Address.	Per cent of voting stock owned by Armour interests.	Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
					Private or public.	Class of commodities.[1]
Colorado Packing & Provision Co	Denver, Colo	100	Denver, Colo	905,263	Private	Produce, meat, lard.
Smith, Richardson & Conroy (Inc.)	Jacksonville, Fla	51	Jacksonville, Fla	76,121	do	Produce.
Anglo-American Provision Co	Chicago, Ill	100	Chicago, Ill	5,707,141	Combined	Fruit, meat, lard.
North American Provision Co	do	100	do	1,861,338	do	Produce, meat, lard, fruit.
Nicholson Ice & Produce Co	Denison, Iowa	[2] 50	Denison, Iowa	98,872	do	Produce.
Fowler Packing Co	Kansas City, Kans	100	Kansas City, Kans	2,754,826	do	Produce, meat, lard.
Boston Terminal Refrigerating Co	Boston, Mass	100	Boston, Mass	1,214,719	Public	Do.
Hyde Wheeler Co	do	100	do	65,819	Private	Do.
T. H. Wheeler Co	do	97	do	112,838	do	Do.
Aaron Poultry & Egg Co	Kansas City, Mo	50	Kansas City, Mo	14,040	do	Produce.
Hammond Packing Co	South St. Joseph, Mo	100	South St. Joseph, Mo	4,244,369	do	Produce, meat, lard, fruit.
Jersey City Stock Yards Co	Jersey City, N. J	[3] 69.5	Jersey City, N. J	152,533	Public	Meat.
Cortland Beef Co	Cortland, N. Y	[4]	Cortland, N. Y	82,612	Private	Produce.
Atlantic Hotel Supply Co	New York, N. Y	[4]	New York, N. Y	28,888	do	Produce, meat, lard.
Harold L. Brown Co., Inc	do	60	do	32,086	do	Produce.
New York Butchers Dressed Meat Co	do	100	do	732,000	do	Meat.
Pittsburg Provision & Packing Co	Pittsburgh, Pa	[5] 96	Pittsburgh, Pa	1,236,481	do	Produce, meat, lard.
Armstrong Packing Co	Dallas, Tex	[6]	Dallas, Tex	487,000	do	Do.
Eau Claire Creamery Co	Eau Claire, Wis	[7] 59	Eau Claire, Wis	2,192	do	Butter.
C. E. Blodgett Cheese, Butter & Egg Co	Marshfield, Wis	51	Marshfield, Wis	71,500	Combined	Cheese.
Neenah Cheese & Cold Storage Co.[8]	Chicago, Ill	[4]	Mineral Point, Wis	17,000	do	Do.
Do.[8]	Neenah, Wis	[4]	Neenah, Wis	36,000	do	Do.
Do.[8]	Chicago, Ill	[4]	Richland Center, Wis	19,000	do	Do.
Total (23 plants)				19,952,638		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917; Mar. 31, 1918; or July 31, 1918.
[2] Armour & Co. has the managing control and conducts the plant as a branch of its produce department.
[3] Includes interests of Allerton family, which are 10 per cent, but excludes trusted employees' 4 per cent.
[4] Trade name of Armour & Co., Ill.
[5] Armour-Allerton interests, Armour & Co. owning 38 per cent and the Allerton family 58 per cent.
[6] 100 per cent owned by Central Holding Co., in which the Armour-Flippen interests own 100 per cent.
[7] Includes stock not owned by Armour & Co., but pledged to its agents with voting rights as security for a 10-year loan.
[8] Corporation liquidated, but name now used as a trade name by Armour & Co.

TABLE 30.—*Cold-storage plants operated by and under the name of Morris & Co.*

Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
		Private or public.	Class of commodities.[1]
Chicago, Ill	11,530,559	Private	Produce, meat.
East St. Louis, Ill	3,176,497	do	Meat, lard.
Kansas City, Kans	2,783,272	do	Do.
St. Joseph, Mo	2,231,074	do	Do.
Omaha, Nebr	3,630,195	do	Do.
Oklahoma City, Okla	3,081,872	Combined	Produce, meat.
Total (6 plants)	26,433,469		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.

TABLE 31.—*Cold-storage plants operated by companies controlled by Morris & Co.*

Company.			Plant.			
Name.	Address.	Per cent of voting stock owned by Morris interests.	Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
					Private or public.	Class of commodities.[1]
Peerless Packing Co	Chicago, Ill	[2]	Chicago, Ill	76,480	Private	Meat.
Sherman White & Co	Fort Wayne, Ind	52	Fort Wayne, Ind	324,371	Combined	Produce.
Crescent City Stock Yards & Slaughter House Co., Ltd.	Arabi, La	[3] 66.5	Arabi, La	280,000	Private	Not reported.
Eckerson Co	Jersey City, N. J	50	Jersey City, N. J	21,900	do	Produce.
Holland Butterine Co	do	100	do	168,000	do	Do.
Joseph Stern & Son, Inc	New York, N. Y	100	New York, N. Y	979,464	do	Meat, lard.
W. A. Miller & Co	Philadelphia, Pa	[4]	Philadelphia, Pa	12,000	do	Produce, meat, lard.
Smith-Wright Co	North Williston, Vt	[5] 67.5	North Williston, Vt	40,500	Combined	Produce, meat.
C. A. Straubel Co	Green Bay, Wis	50	Antigo, Wis	6,445	do	Cheese.
Jacob Marty Co	Brodhead, Wis	50	Brodhead, Wis	30,118	Private	Do.
C. A. Straubel Co	Green Bay, Wis	50	Clintonville, Wis	22,444	Combined	Do.
Do	do	50	Green Bay, Wis	44,856	do	Do.
Do	do	50	Marion, Wis	6,311	do	Do.
Do	do	50	Shawano, Wis	11,900	do	Do.
Total (14 plants)				2,024,789		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917; Mar. 31, 1918; or July 31, 1918.
[2] 100 per cent owned by Darling & Co., in which the Morris family owns 54.6 per cent.
[3] Excluding trusted employees' 17 per cent.
[4] Trade name of Morris & Co.
[5] Includes 32.5 per cent owned by Chamberlain & Co. (Inc.), in which Morris & Co. owns 67 per cent.

TABLE 32.—*Cold-storage plants operated by and under the name of Wilson & Co., Inc.*

Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
		Private or public.	Class of commodities.[1]
Los Angeles, Calif.	405,888	Private	Produce, meat.
Chicago, Ill.	8,173,500	do	Do.
Kansas City, Kans.	4,550,000	do	Produce, meat, lard.
New York, N. Y.	2,132,626	do	Do.
New York (45th Street plant freezer), N. Y.	11,374	do	Meat.
Oklahoma City, Okla.	3,321,859	do	Produce, meat.
Total (6 plants)	18,595,247		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.

TABLE 33.—*Cold-storage plants operated by companies controlled by Wilson & Co., Inc.*

Company.			Plant.			
Name.	Address.	Per cent of voting stock owned by Wilson interests.	Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
					Private or public.	Class of commodities.[1]
T. M. Sinclair & Co., Ltd.	Cedar Rapids, Iowa	[2]	Cedar Rapids, Iowa	2,559,000	Private	Fruit, produce, meat, lard.
Albert Lea Packing Co., Inc.	Albert Lea, Minn	100	Albert Lea, Minn	168,470	do	Meat, produce, lard.
Mississippi Packing Co., Inc.	Natchez, Miss	100	Natchez, Miss	133,140	do	Do.
Morton-Gregson Co.	Chicago, Ill	100	Nebraska City, Nebr	1,346,645	do	Do.
Stiefel O'Mara Co	New York, N. Y	100	New York, N. Y	14,400	do	Meat, produce.
South Dakota Provision Co	Sioux Falls, S. Dak	100	Sioux Falls, S. Dak	97,759	do	Meat, lard.
Paul O. Reymann Co.	Wheeling, W. Va	100	Wheeling, W. Va	352,252	do	Meat, produce, lard.
Total (7 plants)				4,671,666		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.
[2] All the common stock except seven directors' qualifying shares owned by the Central Products Corporation, in which Wilson & Co., Inc., owns 100 per cent.

TABLE 34.—*Cold-storage plants operated by and under the name of The Cudahy Packing Co*

Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
		Private or public.	Class of commodities.[1]
Birmingham, Ala	50,289	Private	Meat.
Los Angeles, Calif	655,307	do	Produce, meat, lard.
Jacksonville, Fla	40,337	do	Meat.
Chicago, Ill	152,188	do	Not reported.
Sioux City, Iowa	4,713,973	do	Meat, lard.
Kansas City, Kans	5,083,398	do	Produce, meat, lard.
Wichita, Kans	1,383,934	do	Meat, lard.
Omaha, Nebr	5,713,450	do	Do.
Nashua, N. H	46,834	Combined	Produce, meat, lard.
Salt Lake City, Utah	397,560	Private	Do.
Total (10 plants)	18,237,270		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.

TABLE 35.—*Cold-storage plants operated by companies controlled by The Cudahy Packing Co.*

Company.			Plant.			
Name.	Address.	Per cent of voting stock owned by Cudahy interests.	Location.	Cold-storage capacity in cubic feet.	Character of storage business.	
					Private or public.	Class of commodities.[1]
Sunlight Produce Co	Winfield, Iowa	100	Sioux City, Iowa	123,000	Combined	Produce, meat, lard.
Nagle Packing Co	Jersey City, N. J	[2] 55	Detroit, Mich	14,043	Private	Not reported.
Do	do	[2] 55	Jersey City, N. J	92,032	do	Produce, meat, lard.
Do	do	[2] 55	Newark, N. J	21,560	do	Do.
Dow Cheese Co	Plymouth, Wis	100	Fond du Lac, Wis	48,033	Combined	Cheese.
Total (5 plants)				298,668		

[1] Produce here includes poultry, eggs, frozen eggs, butter, cheese, etc. The commodities listed are those held on Nov. 30, 1917, Mar. 31, 1918, or July 31, 1918.
[2] Additional stock pledged as collateral for loan.

CHAPTER III.—POULTRY PRODUCTS.

Section 1.—Buying and selling operations of the five greater packers.

The five greater meat packers, with their affiliated and allied companies, engage in every phase of the poultry products trade. Their operations cover practically every section of the United States and reach even into foreign countries.

BUYING OPERATIONS.—They secure a large part of their poultry products through the poultry and egg buying stations and packing plants which they control. The Commission located 102 poultry and egg packing plants which are controlled by them and 247 buying stations through which these plants secure their supplies.

These buying stations and packing plants are located largely in the Middle West, principally in the States of Iowa, Missouri, and Kansas. Some of them are operated by the meat-packing companies direct, and some of them are operated by subsidiary, affiliated, or allied companies. For example, a great number of the Swift buying stations and plants are operated by subsidiary and affiliated companies of W. F. Priebe Co., a Swift subsidiary, whereas many of the Armour stations and plants are operated by the Kentucky Creameries, Aaron Poultry & Egg Co., A. S. Kininmonth Produce Co., and Nicholson Ice & Produce Co., Armour concerns.

The locations of the 102 controlled poultry and egg packing plants and the 247 buying stations through which supplies are purchased, with the names under which they are operated and their exact relations to the packers are given in Exhibit VII. The following table is a summary of that exhibit:

TABLE 36.—*Number big packer poultry and egg-packing plants and buying stations, grouped by States, 1918.*

State.	Swift & Co.		Armour & Co.		Morris & Co.		Wilson & Co., Inc.		The Cudahy Packing Co.		Total, big packers.	
	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.
Massachusetts	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
New York	.....	.....	1	.....	.....	.....	.....	.....	1	.....	2	.....
New Jersey	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
Pennsylvania	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
District of Columbia	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
Ohio	1	1	.....	.....	2	3	.....	.....	.....	.....	3	4
Indiana	2	4	1	16	1	3	.....	.....	.....	.....	4	23
Illinois	11	31	.....	.....	.....	.....	1	1	.....	.....	12	32
Michigan	2	9	1	.....	.....	.....	.....	.....	.....	.....	3	9
Wisconsin	1	6	1	3	.....	.....	.....	.....	.....	.....	2	9

TABLE 36.—*Number big packer poultry and egg-packing plants and buying stations grouped by States, 1918*—Continued.

State.	Swift & Co.		Armour & Co.		Morris & Co.		Wilson & Co., Inc.		The Cudahy Packing Co.		Total, big packers.	
	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.
Minnesota	2	6	2	.....	1	2	1	.....	3	.....	9	8
Iowa	15	71	3	3	.....	1	3	.....	2	1	23	76
Missouri	6	24	4	6	.....	.....	.....	.....	1	.....	11	30
South Dakota	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
Nebraska	2	19	1	.....	.....	.....	.....	.....	.....	1	3	20
Kansas	3	3	6	8	.....	.....	.....	.....	.....	.....	9	11
Kentucky	.....	.....	1	5	.....	.....	.....	.....	.....	.....	1	5
Tennessee	.....	.....	.....	.....	.....	.....	1	1	.....	.....	1	1
Texas	1	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Oklahoma	.....	1	4	.....	.....	.....	1	1	.....	.....	5	2
Colorado	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Utah	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	1	.....
Washington	.....	1	.....	.....	.....	.....	.....	.....	1	.....	1	1
Oregon	1	12	.....	.....	.....	.....	.....	.....	1	.....	2	12
California	1	3	.....	.....	.....	.....	.....	.....	2	.....	3	3
Total	50	192	25	41	4	9	7	3	16	2	102	247

It will be seen from the exhibit that in many cases poultry and egg-packing plants are not given as having any buying stations. In some cases this may be due to the fact that the buying stations for the plants were not returned to the Commission. It is often due to the fact that the plants have no buying stations as such, but buy regularly from certain country dealers. In many instances these country dealers sell all of their products to the packer's plant, and in some cases these dealers are financed by the packer plant, and in other cases they buy from producers and sell to the packer plants on a commission basis. So the packers' plants in reality have a larger number of buying stations than is indicated by this exhibit.

The packer buying stations buy most of their poultry products directly from the producers. Many of them also buy from country collectors and local grocers who have bought from the producers, and some of them also buy from local poultry and egg shippers.

In addition to buying poultry products through their controlled poultry and egg-packing plants and buying stations, they also buy as well as sell through their regular branch houses and slaughtering plants. This is particularly true in the Southern States and on the Pacific coast, where they have few specialized poultry agencies. The branch houses, like the poultry-packing plants and buying stations, buy from producers, country collectors, local grocers, and local dealers.

The following excerpt from a letter by W. F. J. (Jackson) of Swift & Co. to M. G. Middaugh, dated February 21, 1918, deals with Swift & Co.'s policy of buying and selling poultry products through branch houses:

Sales in Mr. Grafft's territory for 1917 compared to 1916 show a decrease of 20%, which is badly out of line with our egg volume for total United States which shows an increase of better than 12%.

Considering the facilities that Swift & Company have for buying, handling and shipping eggs, we see no reason why the egg volume should not be grown in this particular territory as well as in any other.

It has been the opinion of some Branch House Managers that eggs could not be sold by Branch Houses during the early Spring Mouths, when same are plentiful. However, we have found in recent years that Branch Houses right in the producing sections maintain a fair volume, by keeping in constant touch with both the producers and retailers, shipping where necessary to convenient outside markets, any surplus production. We feel it is simply a question of good business principles regulated by supply and demand and we should expect natural growth in the particular product the same as we experience in other lines.

How Swift & Co. buys poultry products through branch houses and other agencies in the far West is shown by the following letter and memorandum from the files of Swift & Co.:

MAY 7, 1917.

Mr. LOUIS F. SWIFT,
Fourth Floor.

Phoenix, Ariz.

Answering your letter of May 4th we are represented at Phoenix, Arizona by a selling house managed by Mr. Mayfield.

We are working the situation out with Los Angeles and El Paso houses as well as drawing Phoenix out on the matter.

Mr. Mayfield, the manager at Phoenix, has hardly shown the aggressiveness we think he should have shown in getting hold of this produce for his own territory and for outside territories. It is our general feeling at this time that the Phoenix house must show aggressiveness in this respect—in getting hold of the stock, not only for their own local use but also for shipment to these other territories.

Don't believe we are in position yet to recommend our own creamery or produce house near Phoenix.

Imperial Valley.

Swift & Company, Los Angeles, work the Imperial Valley direct from Los Angeles, i. e., buy dressed poultry in the winter time, especially turkeys, also work the country shippers, during few months in the early spring, for eggs.

The writer, while out there, also encouraged them to make some connections for creamery supply from some of the small creameries although at that time were all pretty well hooked up with an outlet.

Climatic conditions in the Imperial Valley most of the year are against a successful handling of produce and it is our opinion that we should not attempt anything down there at this time other than encouraging Swift & Company, Los Angeles, to work territory pretty thoroughly.

H. B. C.* R. H. B. COLLINS.

The following is the memorandum referred to above:

1st Los Angeles

There is no country district around Los Angeles where the production is sufficiently heavy or railroad facilities sufficient to concentrate at any point sufficient poultry or eggs to justify a produce plant.

The railroads and interurban lines practically all lead into Los Angeles. Also, the heavy production is rather close to Los Angeles and large percentage comes in by trucks.

Los Angeles house is able to buy eggs for direct shipment into Los Angeles in very satisfactory manner.

The live poultry also centralizes in Los Angeles.

Five years ago poultry feeding station was started in the Los Angeles house but this did not work out satisfactorily to them and feeding was discontinued.

2nd San Francisco

While there is a larger production of poultry and eggs adjacent to San Francisco, the San Francisco house is in position to buy eggs for shipment direct into San Francisco and there are no country points where the production of poultry is sufficient to justify a poultry feeding station.

Further, a larger percentage of the poultry is of the Leghorn light weight variety, making it expensive to handle and very large number to be handled to make any volume. Large percentage of the poultry centralizes in San Francisco.

There are three feeding stations in the city of San Francisco run by others, including Western Meat Company [controlled by Swift interests] and one station at Petaluma run by McCullough Provision Company, in crude limited way for limited time during the year.

About five years ago feeding station was started in the San Francisco house but results did not prove satisfactory to them and it was closed.

3rd Portland

Production of eggs and poultry is showing a large increase in and around Portland. The Union Meat Company [controlled by Swift & Co.] opened a creamery and feeding station in their wholesale market about five years ago and while the management was not good on the start, they now have a competent manager and material progress is being shown in the handling of poultry. They are not only able to supply their requirements but have supplied approximately eight cars of satisfactory frozen poultry to our San Francisco house during the past season—one car for Los Angeles—small amount for Seattle and Spokane and few of our smaller houses.

The poultry is much larger breed than in California and most satisfactory to handle.

Believe the Union Meat Company are going to grow their business successfully and in addition to taking care of their requirements will be quite a source of supply for San Francisco and Los Angeles.

4th Seattle

The Seattle house buys eggs direct from the country. Also have creamery in operation in their house as well as poultry feeding and dressing department which is working out satisfactorily.

We are furnishing them with another man and it is our estimate they will largely increase their handling this year at satisfactory results and produce sufficient supply of all kinds for their trade even including broilers.

The situation, therefore, resolves itself to a supply for San Francisco and Los Angeles and in view of the fact that proper results were not secured by their feeding stations and fact there is no other point that appears to justify a produce plant at this time, it is our recommendation that the matter be al-

lowed to stand for the present. These two houses to draw their supply of poultry either from other local trade, Union Meat Company, or East as conditions will permit.

The above memorandum is initialed H. B. C., obviously meaning H. B. Collins, manager of Swift & Co.'s produce department.

Each of the big packers also buys poultry and eggs from apparently independent packers who run their own poultry and egg packing plants. Some of the "independent" poultry packers sell all or a large part of their output directly to one or the other of the meat packers or to their affiliated companies. For example, the Cleaver Produce Co., of Moberly, Mo., in 1917 sold 93 per cent of its eggs and 79.42 per cent of its poultry to W. F. Priebe Co. and its affiliated companies.

Morris & Co. marketed in 1917, 99.84 per cent of the entire dressed poultry of A. R. Loomis & Son, Fort Dodge, Iowa. Swift & Co. marketed in 1917, 61.93 per cent of the entire egg supply of the Hooper Produce Co., Chariton, Iowa. Wilson & Co., Inc., disposed in 1917 of 65.78 per cent of the entire egg supply of A. Baird & Co., Lohrville, Iowa. The Wadley Co., Indianapolis, Ind., sold in 1917 to Morris & Co., 27.95 per cent of its dressed poultry and 10.72 per cent of its eggs; to Swift & Co., 23.15 per cent of its dressed poultry and 1.6 per cent of its eggs.

The five packers are also large buyers of dressed poultry and eggs in wholesale markets in the large consuming centers. In Chicago, St. Louis, New York, and other large cities, through their subsidiary and allied produce and meat packing firms, they buy large quantities of poultry produce from commission men, speculators, and carlot dealers.

The big packers are the largest customers of some of the largest wholesale poultry and egg dealers. Morris & Co., Wilson & Co., Inc., and The Cudahy Packing Co. buy very heavily from the wholesale trade. Several of these wholesale dealers have contracts with the big packers to sell to them a certain number of cars of packed poultry and eggs each week. The Greencastle Products Co., with offices at Chicago and Lafayette, Ind., in 1918 had a contract with Wilson & Co., Inc., to ship one car of eggs per week to Wilson's New England branch houses, which eggs were to be paid for on the basis of one-half cent less than the quotation for fresh-gathered firsts on the date that the cars of eggs arrived at the destination.

Selling operations.—The branch houses and car routes are the principal channels through which the five packers sell poultry products. However, a large proportion of dressed poultry and eggs handled by them is disposed of through various other channels.

Swift & Co. maintains several "produce houses" in the various large cities through which poultry products are bought and sold.

The poultry and egg buying and packing firms enumerated above sell large quantities of products to wholesale dealers in the large cities, as well as supply the produce departments of the packers. These sales to independent wholesalers are made when the supplies are not needed by the produce departments.

Some of the large packers have representatives on the produce exchanges who sell poultry products to car-lot dealers and speculators who want to buy. The Harold L. Brown Co., Inc., represents Armour on the different produce exchanges.

They also sell large quantities of poultry products to the retail trade through their family-controlled meat packing companies and selling agencies. This is particularly true of the Swifts. The following letter refers to sales by Swift through the Western Meat Co.:

JULY 12, 1915.

Messrs. W. F. JACKSON,
W. B. HENDERSON.

Suggest you consider, within the next few days, the question of putting up broilers or any other poultry the Western Meat Company want, under their brand. Looks to the writer as though might do this to very good advantage to both.

Prefer, however, to maintain exactly same style of boxes and packing and grading on any of their brands that we maintain on our present brand.

H B C

HBC*R
Copy to E R Patterson, office.

All of the big packers are large exporters of poultry products. As a matter of fact, they, through their controlled firms, handle practically all the dressed poultry and eggs which are exported from the United States. The following letter from the files of Swift & Co. shows how that company, through one of its subsidiaries, in 1915 did a large and profitable export business in poultry products:

JULY 13, 1915.

Mr. LOUIS F. SWIFT,
Fourth Floor.

Answering yonrs of the 12th, Export Frozen Poultry, the season is over for export frozen poultry. It extends in Great Britain from about first of February to first of July, which is time the Irish and English chickens are not available.

From the first of July until first of January English and Irish chickens are very plentiful. There are a few French chickens come in but they are toppy quality and sell high and we are of the opinion they are now coming.

We did the largest frozen poultry business with Great Britain this year that we have had for several years from the U. S. Stock consisted of ⅔ of our own packing and ⅓ outside packing, such as Priebe's and other good packs.

We sold at outright price to Swift Beef Company at profit to us and they in turn sold to the trade all over Great Britain at profit.

Brill came over early last fall and bought large amount poultry, bought it fairly cheap, engaged his space before rates went up and we understand made very bine [fine] profit.

Other small dealers did some business but not as extensive as previous seasons on account of unsettled conditions, shipping facilities, space, etc.

Cudahy is in the produce business. They do a very small poultry business with some eggs, cheese, and butter. Think their cheese business is largest item.

Maurice Mandeville, brother of Paul Mandeville, we understand, is their produce man.

Do not think Cudahy is exporting any poultry. If they are it is in very small way.

We have some light fowl in our freezer (that is not spring chickens) that we have been offering to export but don't think there are any prospects of selling for export.

H. B. COLLINS

Section 2.—Position of the five greater packers in the poultry-products trade.

The five big packers are the dominant factor in the wholesale handling of dressed poultry and eggs. Estimates by individual members of the trade on the extent to which their own firms or localities have suffered in recent years at the hands of the packers run from 60 to 90 per cent and frequently include the expression that for the firm's locality they have substantial control (see Exhibit VIII). For the country as a whole trade estimates place the quantities of dressed poultry and eggs shipped by the packers in 1917 at over 65 per cent of the total shipped from producing areas to consuming centers.

To arrive statistically at the proportion of Big Five control at the point of wholesale distribution both the total sales and the packer sales at this point must, of course, be known. Total sales of poultry products in wholesale distribution have never been ascertained by any governmental agency, and packer sales are only partially known. A fairly close calculation of the first figure, however, may be made and a known minimum figure for the second makes it possible to arrive at a minimum packer percentage. This percentage, which is for 1918, confirms the trade estimate for 1917.

As reported by the United States Census Bureau, the producers sold 31 per cent of the poultry and 58 per cent of the eggs which they produced in 1909. Since that date the quantities sold have not been reported. The quantities produced in 1918 are estimated by the Department of Agriculture as 589,000,000 head of poultry and 1,921,000,000 dozens of eggs.[1] Assuming that the same percentage of producers' sales held for 1918 as for 1909, there were sold by producers in 1918, 182,590,000 head of poultry (547,770,000 pounds) and 1,114,180,000 dozens of eggs.

Obviously these quantities "sold" include much more than wholesale shipments from producing areas to consuming centers over

[1] Circular No. 125, U. S. Department of Agriculture, p. 7.

which packer control is in question. They include the sales direct from producer to consumer to local country and city retail store, and even to wholesaler for local consumption. Not more than 55 per cent of the poultry and eggs sold by producers is shipped to wholesale centers. Of the poultry shipped 5 to 10 per cent is not "dressed," but is shipped alive. So in 1918 there were probably not more than 275,000,000 pounds of dressed poultry and 615,000,000 dozens of eggs "shipped" in the United States.

Sales of poultry products for 1918 have been reported by four of the big packers, Swift & Co., Armour & Co., Wilson & Co., Inc., and The Cudahy Packing Co. (for sales as reported for other years see Exhibit IX). Sales by Morris & Co. were not available. The sales figures reported to the Commission by the four companies as given below are minimum. They include the sales of the principal companies and their subsidiaries only. Throughout the country, however, but especially in the great consuming markets of New England and elsewhere in the East, there are many concerns conducted under names other than those of the big packer companies which are not directly subsidiary to those companies, but which are owned or controlled by members of families controlling those companies. These concerns do not secure all their supplies through the big packer companies or their subsidiaries, but purchase also from independent packers and handlers of dressed poultry and eggs. The quantities so purchased and handled would not be included in these figures.

The following table shows the reported sales of dressed poultry and eggs for 1918 by Swift & Co., Armour & Co., Wilson & Co., Inc., and The Cudahy Packing Co., together with their respective direct subsidiaries, and the percentages of these sales to the total estimated quantities of these products "shipped."

TABLE 37.—*Reported tonnage sales of dressed poultry and eggs for 1918 by Swift & Co., Armour & Co., Wilson & Co., Inc., and The Cudahy Packing Co., and percentages of these sales based upon total estimated quantities of poultry and eggs shipped in the United States.*

[NOTE.—Total for the packers in this table includes sales by subsidiaries but does not include sales by companies controlled by family affiliation or sales by Morris, neither of which were available.]

	Dressed poultry.		Eggs.	
	Pounds.	Per cent.	Dozens.	Per cent.
Estimated shipped, total United States	275,000,000	100.0	615,000,000	100.0
Reported sales, total Swift, Armour, Wilson, and Cudahy	136,190,550	49.5	202,984,278	33.0
Reported sales, Swift & Co.	78,683,000	28.6	91,621,980	14.9
Reported sales, Armour & Co.	27,221,160	9.9	51,949,895	8.4
Reported sales, Wilson & Co., Inc.	[1]22,396,390	8.1	[1]34,139,070	5.6
Reported sales, The Cudahy Packing Co	7,890,000	2.9	25,273,333	4.1

[1] Some duplication is involved in the Wilson sales owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

The above reported sales for the four packers probably do not include more than two-thirds of the poultry products directly and indirectly handled by the Big Five in 1918.

The percentages of the total stocks of poultry products held in cold storage by the five on the three dates reported to the Commission, November 30, 1917, March 31, 1918, and July 31, 1918, together with other data, are given in Chapter II, Table 18, page 102. For dressed poultry these percentages for the five packers taken together were for the three dates, respectively, 34.26, 42.77, and 29.54. For eggs they were for the three dates, respectively, 16.89, 20.26, and 11.67.

These percentages, while comparatively large, do not in themselves represent the proportion of packer sales in wholesale distribution. Independent dealers are relatively large storers of produce, especially of eggs, while the big packers are relatively large buyers of these products as they leave storage. The packers, therefore, handle a much larger proportion of the products stored on a given date than they are reported as holding on that date.

Section 3.—Packer competition in poultry and eggs.

The big packer places the independent dealer in poultry products at a competitive disadvantage through certain questionable practices and through certain marketing advantages. This handicap, which is primarily borne by the independent as competitor, works back to producer and down to consumer in distinct burdens or losses. These practices of packers and these losses to producers and consumers are here discussed. Marketing advantages are treated in Chapter II.

LOCAL PRICE DISCRIMINATION.—The packers do not hesitate to raise prices in a locality in order to take the business away from independent buyers, and equally unhesitatingly lower the prices in those localities where they have eliminated local competition.

J. E. Hoban, a country buyer and shipper of produce at Carrollton, Mo., testified that on the same date, February 6, 1918, F. M. Stamper Co., of Moberly, Mo. (controlled by W. F. Priebe Co.), paid through its agent, J. P. Quick, 45 cents a dozen for eggs and 20 cents a pound for hens at Dalton, Mo., where there were no competitive buyers, while at Carrollton, Mo., and at Hardin, Mo. (through its agent, W. A. Templeton), where there are independent buyers, Stamper paid 54 cents a dozen for eggs and 24½ cents a pound for hens.[1] This testimony was confirmed by T. A. Buchanan, a produce dealer of Hardin, Mo.[2]

The following letter by F. M. Stamper to W. F. Priebe indicates that local price discrimination in buying is a common practice with Stamper.

[1] Chicago Hearings, p. 2803.

[2] Chicago Hearings, p. 2827.

AUGUST 15, 1917.

MR. W. F. PRIEBE,
Chicago, Ill.

DEAR SIR: I have been up in the western part of the State the last two days. Had to go to Richmond to see the Prosecuting Attorney as those fellows are just about to start action about us paying different prices at Hardin and Norborne. Don't amount to anything—just one of those aggravating cases gotten up by complaints of little competition. Am going back to Carrollton to-morrow or next day as I am trying to straighten out this Carrollton proposition and will probably stay up there the remainder of the week. Will run up to Macon this afternoon as the Board has a meeting there.

* * * * * * *

Yours very truly,

(Sgd.) F. M. STAMPER.

FMS—H

Local price discrimination is a general practice with the big packers throughout the producing territory as shown by the statements of independent poultry and egg dealers.

H. Morgan Co., of Cleveland, Ohio, states that:

Swift, Armour and other packers have monopolized buying of butter, eggs, etc. forcing up prices when we try to compete to prohibitive levels, and reducing price unreasonably as soon as we are driven out of the competition.

Arthur Franz, of St. Louis, Mo., who buys poultry in the producing areas, said to an agent of the Commission:

When the packers get ready to buy they get the poultry regardless of the price they have to pay.

Chabrow Bros., of Philadelphia, independent egg dealers, state that Swift & Co., and other packers are bidding up the price or overbidding them, especially in the spring, when eggs are being placed in storage.

W. A. Tuttle, a produce dealer at Buffalo, N. Y., said to an agent of the Commission:

The packers at present are going to shippers and are paying so much for poultry that the shipper can get more by selling locally to the meat packer who ships the poultry to this plant and dresses same, than by shipping to Buffalo.

The following extract from a letter of June 26, 1916, by F. S. Hayward to Edward F. Swift in reference to competition in the produce business at Cadillac, Mich., shows with complete frankness the method and power of the big packers to bring local competitors to terms:

The first year we would probably have to operate at some loss, but while we were doing this, the probabilities are that the other people would be losing more than we would, and we think in the course of time this would bring them around to a reasonable view of the matter.

BOGUS INDEPENDENTS.—Comparatively few of the buying stations controlled by the big packers are run under their own names, as is shown by Exhibit VII. Most of them are operated under the names of the local managers or of subsidiary or allied companies whose connections with the big packers are unknown to producers or to local competitors. This enables the packers to practice local price discrimination and other unfair methods of competition without the knowledge of their competitors.

Through these bogus firms the big packers secure poultry and eggs from dealers who would not otherwise sell to them. Through them they also secure knowledge of their competitors' business, particularly the prices at which they offer to sell.

In many cases if country dealers do not favor the packers by selling to them the latter will put a dealer in the territory who will favor them, as indicated by the following letter of H. B. Collins to L. E. Dunker, of Swift & Co.:

MAY 31, 1916.

Messrs. L. E. DUNKER,
J. Y. MARSHALL

Produce dealers

Think we should instruct our managers, where there is not a good reliable produce dealer or produce dealer that favors us with their product, that we try to grow or make a produce dealer in each town in our territory.

HBC–R

MISBRANDING AND ADULTERATION.—Misbranding of poultry products on the part of the big packers may go as far as actual adulteration, as shown by cases tried by the inspectors of the Bureau of Chemistry of the Department of Agriculture.

The Swift produce department detected misbranding of poultry by Armour & Co., as shown by the following letters:

APRIL 21, 1913.

Mr. CHARLES H. SWIFT,
Office.

The writer was in Philadelphia some few days ago and one of our branch houses, Dock St., had just purchased some frozen poultry of Armour & Company.

The stock consisted of some #1 fowl (old birds not fatted) but they were marked "English Fatted Surrey" and each bird had a celluloid tag attached to the leg, reading "Armour's Helmet Fatted Poultry."

Other of the boxes were marked "Armour's Helmet Fatted Poultry" and contained #2 quality fowls (old birds not fatted).

The placing of tags and these high-sounding names on poultry of this class do not indicate very good handling.

H. B. COLLINS.

Produce Dept.
H B C —R
Copy of Mr. Louis F. Swift, Fourth Floor
Mr. A. D. White, Advertising Dept.

Mr. L. F. Swift sent the above letter with a note to Mr. G. F. Swift, who obtained an opinion from the legal department of Swift & Co.

CHICAGO, *April 23, 1913.*

MR. G. F. SWIFT, JR.

Armour Frozen Poultry.

Referring to the attached: Can you tell how Armour can do this under the law?

Awaiting your reply—

LOUIS F. SWIFT

Dict. L F S
M S B

The following pencil remark appears on the bottom of the above note:

MR. G. F. SWIFT
He can't do it lawfully—it is misbranding under U. S. Pure Food Law.
R C M [McMANUS]
4/24/13.

That this misbranding was not a mere slip or casual neglect on the part of Armour & Co. is indicated by the following report of Swift & Co.'s manager at Creston on the poultry packed for Armour & Co. by the Aaron Poultry & Egg Co., an Armour concern:

CRESTON, *Jan. 14, 1914.*

G. S. REX,
Swift & Company,
Chicago, Ill.

DEAR SIR: It has come to our knowledge that Aaron Packing Company here are packing all springs in boxes which are stenciled "milk fed chickens." We are unable to find out, at this time, whether they are stenciling their fowls this way or not but we believe they are and will try to find out in the near future. It is quite a hard matter for us to do much to those fellows when we are packing same grade of poultry and selling as regulars, really, we believe, grading it better and making a better package and selling ours for regular stock and those fellows selling regular killed poultry right out of the shipping coops, as milk fed.

We positively know they are feeding nothing there and if those chickens they are selling ever had any milk, it was down on the farm. This poultry as we have informed you before is all packed in Armour & Company boxes stenciled "Armour & Company" with the different grades. We do not know how it is possible for them to sell this poultry as milk fed and not see how Armour & Co. could afford to handle this stuff. Do not know whether there would be anything in this or not but we are giving you this information as we thought possibly if Armour & Co. knew what kind of poultry they were getting as milk fed, it would make a difference in the prices they paid these people.

We are giving you this information to handle according to your judgment.

Yours respectfully,

SWIFT & COMPANY, Per R P

Aaron Co. Tagging
fowls and springs on wing. Grade to compare Golden
West and Premium, Armour brand.

The Swift produce department thanked its manager at Creston for the above information and made the following inquiry of its legal department:

JANUARY 15, 1914.

Mr. R. C. McMANUS,
Legal Department.

We attach herewith letter from our Creston manager and copy of our reply. This indicates that the Aaron Packing Co., who we think is a part of Armour & Company, are packing ordinary poultry at Creston and branding it "Milk Fed," which would seem to us a violation of the Pure Food Laws and would come under misbrandlng.

There is considerable deception being practiced in the way of misbranding produce such as branding half fed chickens "Milk Fed" and chickens that have not been fed at all "Milk Fed." We do not think we shall stand for this in the Produce business any more than we would in the Packing business and would be glad if you would advise us what action you think we could take in the matter. However, do not wish you to take any action without hearing from us further.

We are especially interested in this case, as case was brought to the attention of Mr. L. F. Swift where Aaron was misbranding their poultry and he seemed quite interested in the deal at that time.

Please reply

The following reply was furnished by R. C. M. [McManus] of the legal department:

CHICAGO, *January 17, 1914.*

Mr. H. B. COLLINS,
Second Floor,

FRAUD IN MILK FED LABELS

Answering yours of the 15th, nobody owns the words "Milk Fed." If Aaron Packing Company is branding chickens "Milk Fed" which are not so fed, then any shipments they may make interstate violate the National Food Law. and a complaint to the Department of Agriculture would no doubt result in sending an inspector to seize the goods and prosecute the company for fraud.

R C M–I O B. R. C. M.

The following record of a case of the United States attorney for the northern district of Illinois against Armour & Co. for adulteration of desiccated eggs indicates that this company is not always careful about the quality of its eggs:

4037. Adulteration of desiccated [evaporated] eggs. U. S. *v.* Armour & Co. Plea of guilty. Fine, $200 and costs. (F. & D. No. 2690. I. S. No. 1778–c)[1]

On January 26, 1912, the United States attorney for the northern district of Illinois, acting upon a report by the Secretary of Agriculture, filed in the district court of the United States for said district an information against Armour & Co., a corporation, Chicago, Ill., alleging shipment by said company, in violation of the food and drugs act, on May 7, 1910, from the State of Illinois into the State of Washington, of a quantity of desiccated [evaporated] eggs which were adulterated.

Bacteriological examination of a sample of the product by the Bureau of Chemistry of this department showed after 3 days' incubation 610,000,000

[1] U. S. Department of Agriculture, Bureau of Chemistry, Service and Regulatory Announcements, p. 47.

organisms per gram developing on plain agar at 25° C.; 540,000,000 at 37° C.; 100,000 B. coli type organisms. The appearance of the product was fair, odor bad, and some dirt was present.

Adulteration of the product was alleged in the information for the reason that it consisted in part, the exact proportion whereof was to the United States attorney unknown, of a filthy animal substance, the exact character whereof was to said United States attorney unknown; for the further reason that the article consisted in part, the exact proportion whereof was to the United States attorney unknown, of a decomposed animal substance, the exact character whereof was to the United States attorney unknown; and for the further reason that the article consisted in part, the exact proportion whereof was to the United States attorney unknown, of a putrid animal substance, the exact character whereof was to the United States attorney unknown.

On October 28, 1914, the defendant company withdrew its plea of not guilty theretofore entered, and entered a plea of guilty to the information, and the cause was taken under advisement by the court. On March 26, 1915, the court imposed a fine of $200 and costs on the plea of guilty entered as above stated.

CARL VROOMAN,
Acting Secretary of Agriculture.

WASHINGTON, D. C., *November 4, 1915.*

That Armour & Co. is not the only big packer who adulterates eggs is shown by the following record of a case of the United States attorney for the district of Kansas against The Cudahy Packing Co.: The official report on the case follows:

3942. Adulteration and misbranding of eggs. U. S. *v.* Cudahy Packing Co. Plea of guilty. Fine, $400 and costs, (F. & D. No. 5618. I. S. No. 6701-e.).[1]

On October 31, 1914, the United States attorney for the district of Kansas, acting upon a report by the Secretary of Agriculture, filed in the district court of the United States for said district an information in 2 counts against the Cudahy Packing Co., a corporation organized under the laws of the State of Illinois, with principal offices at Chicago, Ill., and doing business in Kansas, alleging shipment by said defendant, in violation of the food and drugs act, on or about January 25, 1913, from the State of Kansas into the State of Missouri, of a quantity of eggs which were adulterated and misbranded. The products was labeled: (On one end of cases) "Meadow Grove April Extra." "J 1" (On other end) "Meadow Grove April Extra." (With blurred stamp) "Spots." (On top, in blue pencil) "No. 2."

An examination of a sample of the product by the Bureau of Chemistry of this department showed the following results:

Number of eggs examined	72
Absolutely rotten, consisting of yellow or brown mass	52
Black "rots"	9
Blue mold	2
Spots and stale eggs, yolks breaking	8
Spot egg, fairly firm	1

Not an egg examined was fit for food. Odor of most of samples very offensive. Appeared worse than usual candled out "Rots." Product consists of rotten, moldy, and spot eggs, which constitute filthy, decomposed, or putrid animal matter.

[1] U. S. Department of Agriculture, Bureau of Chemistry, Service and Regulatory Announcements, p. 547.

Adulteration of the product was alleged in the information for the reason that it consisted in part of a filthy, decomposed, and putrid animal substance, that is to say, the cases, when shipped and delivered for shipment, contained a large number of rotton eggs, mfoldy eggs, spot eggs, and eggs affected by black rot. Misbranding was alleged for the reason that the statement "Meadow Grove April Extra No. 2," borne on the package, was false and misleading, because it was calculated to mislead and deceive the purchaser into the belief that the eggs were of extra quality and were suitable for human food, whereas, in truth and in fact, the eggs were not of extra quality and were unfit for human consumption.

On January 11, 1915, the defendant company entered a plea of guilty to the information, and the court imposed a fine of $200 on each count of the information, making a total fine of $400, and costs.

CARL VROOMAN,
Acting Secretary of Agriculture.

WASHINGTON, D. C., *June 30, 1915.*

In the above two cases the packers admitted their guilt and paid fines and costs.

EFFECT OF PACKER COMPETITION ON PRODUCER.—Many producers are not in a position to protect themselves against the growing power of the packers in the poultry and egg business. In several producing sections there are no dealers other than the packers' agents to whom they may sell.

Probably the majority of the producers who sell to the packers do not know that they are selling to the packers. This is true because few of the agencies buying for the packers are operated under their names, but are operated under local trade names or under the names of the representatives who run them. Again many of the nominally independent buyers sell all or a part of their supplies to the packers, and many of them do this on a contract commission basis, so that they are merely packer agents. Therefore the producer has no way of knowing when he is selling to the big packers' agents.

Few producers have a means or an outlet to ship directly to wholesale markets, but must depend on the local buyers. As the local independent buyers are eliminated or become the agents of the big packers, the producers have no choice but to sell to the packers at prices set by the latter. The channels of trade through to the retail trade must be opened up so the producers can have their goods offered in a free and open market.

EFFECT OF PACKER COMPETITION ON CONSUMER.—Consumers equally with producers are in a disadvantageous position in reference to the packers' power in the poultry trade. Producers in many localities must sell their poultry products to packers, if they sell at all; consumers in many centers must buy packer poultry, if they get poultry.

It is generally conceded in the wholesale poultry trade that the packers determine wholesale prices for dressed poultry and eggs. As

meat substitutes their prices are kept in line with meat prices, and by having the dominant position for both poultry products and meat products the packers are able to get the maximum prices for both classes of products consistent with the supply of both. Relief for the consumer can come by opening up the channels of wholesale trade so that poultry products pass more directly to him through channels other than those controlled by the meat packers.

CHAPTER IV.—DAIRY PRODUCTS.

Section 1.—Character and extent of packer activity.

Rapid growth of the big meat packers in the manufacture and wholesale handling of dairy products has characterized this division of the food industry. In some of these products wholesale handling particularly has reached large proportions, with one packer leading for the entire country. Estimates of the trade on the extent to which this part of the produce business for various localities and firms has been absorbed by the packers are given in Exhibit VIII. Evidence of combination of the five greatest meat packers in these lines through price agreements and division of territory has been presented in Part II of this Report.[1]

Purpose of activity.—Perhaps the most important of the factory dairy products is butter, the substitute for which originally was the packer's oleomargarine, the chief ingredient of which was the oleo oil of the beef animal. More recently vegetable oils, especially cottonseed oil, have been largely supplanting oleo oil in the making of oleomargarine, and the packer to retain his position of dominance over the substitutes for butter began the manufacture of vegetable substitutes.[2]

To secure, however, the maximum benefits of control over the substitutes of butter, the packer was prompted to reach out extensively into the manufacture and distribution of butter itself. Thus commodities of widely different origin, yet supplying the same general want and therefore normally competitive in both production and consumption, are in production no longer strictly competitive. This situation works progressively to throw both butter and its substitutes into the hands of the packer. If the price of butter goes too high, the trade will go more largely to butter substitutes, and the butter manufacturer devoted exclusively to butter making loses his trade to the packer maker of substitutes. Moreover, the higher the price of butter goes the higher the price that the packer can charge for his butter substitutes, and the additional gain on substitutes will compensate him for any losses in volume or margin he may be compelled to take in his butter business, while the manufacturer devoted exclusively to butter, unable to recoup in this way, may be forced to the wall. The clear tendency is to place the trade both in butter and in butter substitutes more and more in the hands of the packers.

With the packer interest controlling both butter and its substitutes,

[1] Pages 134–156.

[2] See sec. 2, Chap. V, for a discussion of packer activity in butter substitutes.

the public interest will suffer because there will no longer be any real competition between these commodities, and it will make little difference to the packer which commodity the public buys.

Further, the more lines of milk products (butter, cheese, condensed milk) the packer enters to an important degree the greater his control of the use to which the milk supply shall be put, and the greater his power to influence the competition of butter with butter substitutes produced from his packing-house and cotton-oil-refinery investments.

Cheese containing a considerable proportion of the same nutritive elements as found in lean meat becomes an important substitute for meat. For the packer to hold a commanding position in the production and distribution of cheese strengthens the packer's position in meat and as in the case of butter and its substitutes secures for him an important advantage over the manufacturer of only one of the commodities.

CREAM AND BUTTER.—Butter handled by the meat packer is either bought from the farmer or small country producer through buying stations and renovated in the packer's plants, or manufactured in the packer's own creameries from cream bought by the packers through buying stations, or bought from outside butter manufacturers. About one-half of the butter handled by Swift & Co. and a much larger per cent of that handled by each of the other big packers is secured from outside manufacturers.

Butter made by the farmer and known as packing-stock butter, collected from the country merchant and from the farmer direct, is handled by buying stations, many of them buying at the same time poultry, eggs, and cream. This butter is taken by plants, which also usually buy direct, and is renovated, standardized as to quality, packed in merchantable form, and shipped. Often these plants are equipped also to manufacture creamery butter and to pack poultry and eggs.

There were 123 stations engaged in buying butter and 66 renovating plants as reported by the Big Five in 1918. (See Exhibit X.) These were distributed by States and by packers as follows:

TABLE 38.—*Number big packer butter-renovating plants and buying stations, grouped by States, 1918.*

State.	Swift & Co.		Armour & Co.		Morris & Co.		Wilson & Co., Inc.		The Cudahy Packing Co.		Total, big packers.	
	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.	Plants.	Buying stations.
Massachusetts	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
New York	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	1	.....
Ohio	1	1	.....	.....	2	3	.....	.....	.....	.....	3	4
Indiana	.....	.....	1	16	1	3	.....	.....	.....	.....	2	19
Illinois	6	20	.....	.....	.....	.....	1	1	.....	.....	7	21
Michigan	1	5	1	.....	.....	.....	.....	.....	.....	.....	2	5
Wisconsin	.....	1	.....	.....	.....	.....	.....	.....	1	.....	1	1
Minnesota	2	5	2	.....	.....	.....	1	.....	.....	.....	5	5
Iowa	11	27	3	.....	.....	.....	3	.....	2	1	19	28
Missouri	1	10	4	6	.....	.....	.....	.....	.....	.....	5	16
Nebraska	.....	1	1	.....	.....	.....	.....	.....	.....	1	1	2
Kansas	2	1	6	.....	.....	.....	.....	.....	.....	.....	8	1
Kentucky	.....	.....	1	5	.....	.....	.....	.....	.....	.....	1	5
Tennessee	.....	.....	.....	.....	.....	.....	1	1	.....	.....	1	1
Texas	1	1	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Oklahoma	.....	.....	4	.....	.....	.....	1	1	.....	.....	5	1
Colorado	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Oregon	1	12	.....	.....	.....	.....	.....	.....	.....	.....	1	12
Washington	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
California	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....
Total	29	85	24	27	3	6	7	3	3	2	66	123

Included in the above table are many renovating plants operated under names other than those of the big meat packing companies.

Swift & Co. controls through affiliations the Western Meat Co., San Francisco, and by direct ownership the Union Meat Co., Portland, Oreg., both of which operate such plants. W. F. Priebe Co., whose stock is owned by Swift & Co., operates plants at Humboldt, Hampton, Waseca, and Muscatine, all in Iowa, and the Morrison Produce Co., Morrison, Ill. The Priebe Co. also operates one plant through each of the following companies: The Atlantic Produce Co., Atlantic, Iowa; the Manning Produce Co., Manning, Iowa; the W. B. Parrott Co., Carroll, Iowa; T. D. Winders, Aledo, Ill.; W. H. Schreitling, Monmouth, Ill.; the W. A. Schwartz Produce Co., Lanark, Ill.; the L. G. Grampp Produce Co., Sterling, Ill.; and Martin Schulze, Bushnell, Ill. F. M. Stamper Co., financed by the W. F. Priebe Co., its selling agent, operates a plant at Moberly, Mo.

Armour & Co. operates a renovating plant through each of the following companies: Kentucky Creameries (trade name), Louisville, Ky.; A. S. Kininmonth Produce Co., Winfield, Kans.; Nicholson Ice & Produce Co., Denison, Iowa; Aaron Poultry & Egg Co., Kansas City, Mo.; and Enid Poultry & Egg Co., Enid, Okla.

Morris & Co. operates through Sherman White & Co., a renovating plant at Fort Wayne, Ind. The Cudahy Packing Co. operates such a plant at Sioux City, Iowa, through the Sunlight Produce Co., and

Wilson & Co., Inc., at Altamont, Ill., through the Altamont Produce & Packing Co.

A steady movement in the direction of concentration in the creamery business has been apparent during the last 20 years. While there has been a constant increase in the quantity of butter manufactured, each census since that of 1899 shows a decrease in the number of butter-making establishments and an especially noteworthy decrease in the number of proprietors and firm members. During the five years from 1909 to 1914, the year of the latest census, there was an increase of butter manufactured by establishments from 624,764,653 pounds to 769,809,781 pounds, a gain in quantity manufactured of 23 per cent. During the same period the number of such establishments decreased from 4,783 in 1909 to 4,356 in 1914, a loss of 8.9 per cent, while the number of proprietors and firm members decreased from 3,855 to 2,543, a decrease of 34 per cent.

An increase of 23 per cent in quantity of output and a decrease of 34 per cent in number of proprietors and firm members during a period of five years indicate a rapid movement toward the elimination of the smaller manufacturer.

While other large firms have played a part, the entry of the meat packers into the collection of cream and the operation of creameries has been an important factor in this concentration of both the buying of cream and the manufacturing and marketing of creamery butter. Their activities in these lines, therefore, become of prime interest to the producer, the manufacturer and distributor, and the consumer.

Cream-buying stations for the packers' creameries are thickly distributed throughout the great producing section of the Middle West and widely scattered elsewhere. Fifteen hundred and sixty-four stations engaged in buying cream, and 57 creameries were reported by the big packers in 1918 (see Exhibit XI). These were distributed by States and by packers as follows:

TABLE 39.—*Number big packer creamery plants and cream-buying stations, grouped by States, 1918.*

[Wilson & Co., Inc. reported no such stations or plants.]

State.	Swift & Co.		Armour & Co.		Morris & Co.		The Cudahy Packing Co.		Total, four companies.	
	Creameries.	Buying stations.	Creameries.	Buying stations.	Creameries.	Buying stations.	Creameries.	Buying stations.	Creameries.	Buying stations.
Ohio	2	91			2	3			4	94
Indiana	2	19	1	61	1	2			4	82
Illinois	2	115							2	115
Michigan	2	125							2	125
Wisconsin		6	7	29			3		10	35
Minnesota	1	11		5					1	16
Iowa	9	220	1	21					10	241
Missouri	5	282			1	51			6	333
Nebraska	1	50							1	50
Kansas	3	95	1	75		26			4	196
Kentucky			1	24					1	24
Texas		12		2						14
Oklahoma	2	128		60					2	188
Arkansas		4								4
Wyoming		1								1
Colorado	1	10							1	10
New Mexico		3								3
Nevada	1	1							1	1
Washington		2								2
Oregon	1	15							1	15
California	6	15	1						7	15
Total	38	1,205	12	277	4	82	3		57	1,564

The above table includes not only the creameries operated in the name of the meat-packing companies, but those of the various companies thus far identified as being controlled in the interest of the meat-packing companies.

In the latter group appear the following: The Western Meat Co., San Francisco, whose operations are controlled by the Swift interests, reports 3 creameries in California and 1 in Nevada, and 10 buying stations in the two States. The Union Meat Co., Portland, Oreg., now owned by Swift & Co., operates a creamery at Portland, having 17 buying stations in Oregon and Washington. Libby, McNeill & Libby, 99.8 per cent of whose stock was owned by Swift & Co. until 1918, when it was reported as prorated among the stockholders of Swift & Co., operates a combination condensery, creamery, and dry-milk-powder factory at Loleta, Calif. The W. F. Priebe Co., Chicago, whose entire stock is owned by Swift & Co., operated, at the time of the Commission's investigation, under lease from the Western Packing Co., a creamery at Spirit Lake, Iowa, having nine buying stations in Iowa. The F. M. Stamper Co., Moberly, Mo., a majority of whose stock is owned by W. F. Priebe, and whose operations are financed by the W. F. Priebe Co., its selling agent, owned in turn by Swift & Co., operates a creamery at Moberly, having eight buying stations in Missouri and Iowa. The Centralia Butter Co., Centralia, Ill., having a selling arrangement with the W. F. Priebe Co., for the

bulk of its output, operates a creamery at Centralia with 20 buying stations in Illinois.

The creameries reported for Armour & Co. in the table above, in addition to those operated under the company's own name, include a creamery plant at Oakdale, Calif., operated by Armour & Co. under the trade name of Oakdale Creamery; a creamery at Louisville, Ky., operated by the Kentucky Creameries, a trade name of Armour & Co. of Kentucky, whose entire stock is owned by Armour & Co., the creamery having 24 buying stations in Kentucky and 22 in Indiana; 6 creameries at various points in Wisconsin operated by the Eau Claire Creamery Co., Eau Claire, Wis., which is controlled by Armour & Co. through stock ownership and financing, and which has 29 buying stations in Wisconsin and 5 in Minnesota; a creamery at Winfield, Kans., operated by the A. S. Kininmonth Produce Co., 50 per cent of whose stock is owned by Armour & Co. and which has 136 buying stations in Kansas and Oklahoma and 2 in Texas; a creamery at Denison, Iowa, operated by the Nicholson Ice & Produce Co., 50 per cent of whose stock is owned by Armour & Co. and which has 21 buying stations in Iowa.

Morris & Co. controls Sherman White & Co. through ownership of 52 per cent of the stock, and also has an arrangement by which it is given preference in handling the controlled company's products. This company operates a creamery at Fort Wayne, Ind., which has three buying stations in that State.

The Cudahy Packing Co. owns the D. E. Wood Butter Co., which operates a creamery at Evansville, Wis. The latter company has an arrangement by which the entire output of the W. M. Peacock concern, Fennimore, Wis., is taken.

The volume of butter distributed by the big packers is, of course, much larger than that manufactured in their own and controlled plants and in other plants under a fixed arrangement to take the output. While Swift & Co. manufactures approximately one-half of what it handles, and Armour & Co. somewhat less, Morris & Co. and The Cudahy Packing Co. make only a small proportion of what they handle, and Wilson & Co., Inc., so far as reported to the Commission, none at all.

The distribution of the packer's butter, both manufactured and purchased, some to wholesale firms but largely to retail firms and to hotels, is effected through branch houses of the parent company and those of controlled meat-packing companies, through controlled selling companies, including produce and hotel-supply firms,[1] and by direct consignment or sale from factory or storage to the trade. Included in the latter is the distribution by the so-called peddler-car route.

[1] For a fuller discussion of the packer's food selling agencies, see Chapter II, pp. 32–43.

In the distribution of butter, as well as its manufacture, Swift & Co. leads not only the big packers but all other dealers. The growth of this company in this particular has been rapid. As showing its sales in 1914 and the proportion of these sales arising from its own manufacture, as well as the selling methods and profitableness of the business, the following paragraphs are taken from a letter dated August 6, 1915, by the manager of the produce department to Mr. Louis F. Swift, president:

Last year, Swift & Company, through all channels sold about 45000000# butter (25000000# of which was manufactured by ourselves) about 14-15000000# we estimate went out in pound packages, with our individual brand thereon.

We are working on little different lines, i. e., establishing creameries only in connection with produce plants, where we get advantage of increased efficiency out of our investment and butter milk for feeding. We sell through our general branch houses and have not yet advertised.

The business has averaged profitable on the manufacturing end and to branch-house selling end has been very profitable.

Consider we have made a fine start in the butter business and expect to show better financial results and materially larger increase in the business during next year.

HBC*R H. B. COLLINS.

The above sales of 45,000,000 pounds were made "through all channels," not only through branch house, but by car route and direct consignment to wholesale and retail trade, though doubtless they do not include sales by many affiliated companies and those otherwise controlled.

The letter below, dated almost a year later, gives the estimated sales and relative standing of the leading butter distributors. Swift & Co. is 40 per cent in advance of the largest independent manufacturer and 100 per cent of any other meat packer. Swift & Co. is 150 per cent in advance of the second largest independent.

JUNE 27, 1916.

Mr. Louis F. Swift,
Fourth Floor.

Butter Business

Answering yours of the 23rd inst. asking if Blue Valley comes third on sales of butter to retail dealers and who comes first and second, we give below our best estimate:

Standing.	Name.	Estimated yearly sales.
		Pounds.
1st	Swift & Company	50,000,000
2nd	Fox River	35,000,000
	Beatrice Creamery	
3rd	Armour & Co.	25,000,000
4th	Blue Valley	20,000,000

You will note, in our revised estimate we have put Armour & Company ahead of Blue Valley. It is [a] little hard for us to [get a] very good line on Armour's butter business but believe the guess a fair one.

We are doing practically no advertising on our butter business. We are showing healthy growth and have the situation pretty well lined up for materially increased butter business the last six months of the year.

—H. B. COLLINS—

Produce Dept.
HBC*R
Copy to Messrs. Edward F. Swift.
F. S. Hayward.

The branch-house sales are much smaller than the total sales as given above. For the fiscal year closing September, 1916, Swift & Co., including subsidiary and affiliated companies, reported sales of butter through branch houses of about 38,000,000 pounds. In the calendar year 1917 these sales had increased more than 22 per cent over those of 1916, and the sales of December, 1917, were 28.3 per cent greater than those of December, 1916.

Not content with this record of growth, Swift & Co. was pushing for still larger results for 1918. The following paragraphs are from a letter dated December 5, 1917, by W. B. Henderson to W. F. Jackson, both assistant managers in the produce department:

During my visit at Washington Mr. Collins offered the following suggestions:

That every effort be made to rush completion of the new creameries in Ohio, Illinois, Indiana, etc.

That we begin laying our plans to increase our butter sales next year, figuring to show increase of 25% 1918 over 1917.

How well Swift & Co. was able to realize upon these plans appears from the report of the company that its sales in 1918 amounted to 66,621,000 pounds.

Armour & Co. reports sales of butter for the fiscal year ending October 28, 1916, of 30,528,177 pounds and for the fiscal year ending November 2, 1918, 51,016,876 pounds, an increase of 67 per cent. Wilson's sales[1] for the same years were, respectively, 14,341,827 and 21,565,099 pounds, a gain of 50 per cent. The Cudahy Packing Co. reports butter sales for 1917 of 12,290,000 pounds and for 1918 of 16,760,000 pounds, an increase in one year of 36 per cent. (For greater detail on the sales of the four companies see Exhibit IX.) The combined butter sales for Swift, Armour, Wilson, and Cudahy for the year 1918 were 155,962,975 pounds. These figures include sales not only by the branch house, but by all other selling agencies controlled directly by the principal company or its subsidiaries, such as direct consignment, car route, and produce houses. Sales by the branch houses of slaughtering companies and by other selling

[1] Some duplication is involved in the Wilson sales owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

agencies controlled through affiliation, however, are not included. No sales figures on butter for Morris were available for 1918.

A table showing among other things absolute quantities of butter held in cold storage by each of the Big Five and by all collectively and by independents, together with the percentages of the totals, for November 30, 1917, March 31, 1918, and July 31, 1918, was given in the discussion of the packers' buying and marketing advantages (see Chapter II, p. 102). The percentages of the totals held by the great packers collectively on these dates were, respectively, 19.18, 33.8, and 23.64.

These percentages while comparatively large do not yet represent the full strength of the packers' position in the handling of butter. The Commission found in its investigation evidence that independents were relatively heavy storers of both provisions and produce, but that the big packers were relatively heavy buyers of these goods as they came out of storage or buyers of the warehouse receipts while the goods were yet in storage. In the latter case the warehouse companies usually found it difficult, if not impossible, to report the true owners on the dates in question, the original storers being given as the owners on those dates. Under these two conditions the percentage of stored goods handled by the Big Five after leaving storage would be much larger than the percentage of stored goods reported as owned by them.

It is difficult, if not impossible, to secure the data by which to determine a percentage which will reflect the true degree of control by the big packers over the wholesale distribution of butter. No recent figures for the total production including that made on the farm are available except estimates. Of this total only estimates can be had for the amount sold.

If it may be assumed that all the factory-made butter is sold, yet of this amount only estimates can be made to arrive at that part which finds its way into wholesale distribution. The slightly more than 90,000,000 pounds distributed through branch houses by the big packers in 1916 is a minimum figure which should be increased more than 30 per cent[1] to cover sales by agencies other than branch houses, by subsidiary companies, and by companies controlled through affiliation. Thus, both a reduction of the factory output, which in 1916 was 760,030,573 pounds,[2] and an increase of the packer sales should be made before an adequate basis is arrived at for determining the big packer proportion in the wholesale distribution of butter.

[1] This per cent is based upon the excess of total sales by Swift & Co. for 1916, as disclosed by a letter from its files (see p. 155), over its reported branch-house sales. This percentage, however, falls short since the sales disclosed in the letter are for Swift & Co. and its subsidiaries but do not include those for companies controlled through affiliation. Armour & Co. reported branch-house sales of butter for 1917 of 28,431,856 pounds and total sales of 43,470,476 pounds, an excess of total over branch house of 52 per cent.

[2] Figures furnished by the Bureau of Markets.

Similar adjustments in the 1918 factory output of 793,275,309 pounds [1] and the packer sales of 155,962,975 pounds would be required, except that it should be remembered that the sales of Morris & Co., which were not available, are not included in the above figure and that while the packer sales of agencies other than branch houses are included the sales of companies controlled by affiliation are not.

CONDENSED, EVAPORATED, AND POWDERED MILK.—Plants for the manufacturing of condensed, evaporated, and powdered milk have been and are being established by some of the big packers. By means of these plants they are obtaining a position of importance in a field which competes with the creameries and cheese factories for the milk output of the country. In this field they are relatively newcomers and are not yet proportionately as important national factors as they are in the purchase of cream and the manufacture of butter and cheese, but wherever the condensery of the packer is established it becomes for that district the controlling element in the purchase of milk from the farmer.

Swift & Co., through Libby, McNeill & Libby, an affiliated company, operates the following plants and buying stations:

Plants.		Buying stations.	
Location.	Product manufactured.	Location.	Product bought.
Adams Center, N. Y.	Condensed milk.		
Morrison, Ill.	Condensed and evaporated milk.	Chadwick, Ill. Fenton, Ill. Prophetstown, Ill.	Fresh milk. Concentrated milk. Fresh milk.
Capron, Ill.	Condensed milk.		
Fay-Argo, Ill.	do.		
Union, Ill.	Condensed and evaporated milk.		
Juneau, Wis.	do.		
Sharon, Wis.	do.	Darlen, Wis.	Fresh milk.
Whitewater, Wis.	do.		
Waupun, Wis.	do.	Fox Lake, Wis.	Concentrated milk.
La Junta, Colo.	do.		
Berne, Ind.	Condensed milk.		
Perrinton, Mich.	Condensed and evaporated milk.	Sheridan, Mich. Ithaca, Mich. Maple Rapids, Mich. Ashley, Mich.	Fresh milk Do. Do. Do.
Loleta, Calif.	Condensed, evaporated, and powdered milk.		

Swift & Co. is the largest packer manufacturer of condensed and evaporated milk, having a pack in 1917 of about 1,500,000 cases out of a total of 27,100,000 cases, or 5.5 per cent of the country's total pack.

Armour & Co. owns and operates, under the trade name of the Pacific Creamery Co., a plant at Tempe, Ariz., which manufactures evaporated milk and which has one buying station at Glendale, Ariz. A second plant, located at Stoughton, Wis., manufactures evaporated milk and is operated by the Wisconsin Dairy Products Co.,

[1] Figures furnished by the Bureau of Markets.

a majority of whose stock is owned or controlled through pledges by Armour & Co. The plant has buying stations at Oregon, Utica, McFarland, Edgerton, Sparta, and Genesee, Wis. A plant at Bloomer, Wis., manufacturing both condensed and evaporated milk, is owned and operated directly by Armour & Co. The Meadowbrook Condensed Milk Co., Issaquah, Wash., manufacturing evaporated and condensed milk until the destruction of its factory by fire in May, 1918, delivered its output of evaporated milk to Armour & Co. on contract. The original contract dated December 5, 1916, was on the basis of 100,000 cases of 48/16 at price of $3.60 per case f. o. b. Issaquah, but this was later revised to a basis of cost plus 5 per cent.

None of the other big meat packers was reported to the Commission as being engaged in the manufacture of condensed, evaporated, or powdered milk.

The handling of these forms of milk through branch house or other selling agency is common to most of the packers, and a much larger total is therefore sold than manufactured by them. The sales of canned milk[1] by Libby, McNeill & Libby (a Swift concern) amounted in 1915 to 20,890,459 pounds, in 1916 to 47,122,425 pounds, in 1917 to 112,533,725 pounds, and in 1918 to 153,480,638 pounds. The tonnage sales in 1918 were 635 per cent greater than in 1915 and the total sales for the four years were 334,027,247 pounds. Of the country's total pack of evaporated and condensed milk in cases, amounting in 1917 to 1,211,016,000 pounds and in 1918 to 1,470,672,000 pounds, Libby sold 9.3 and 10.4 per cent, respectively. Libby's sales for 1917, as will be noted from a comparison with its pack as given above, considerably exceeded the latter. Other Swift sales or the sales of others of the five packers are not available.

CHEESE.—The cheese-making industry is decentralized in its ownership and operations. While there is a pronounced movement toward concentration in these particulars, the number of owners and the number of establishments declining and output increasing from 1909 to 1914, the census of the latter year still shows 3,082 establishments engaged primarily in the manufacture of cheese, only 11.1 per cent of which were owned by corporations.

This decentralization in the manufacture of cheese renders control over the industry by control of the manufacture difficult, and under the present highly competitive conditions in cheese-making the small manufacturing profit is scarcely sufficient to attract the packer's capital. This, as well as the difficulty the big packer has in dealing directly under his own name with the farmer, is emphasized by the

[1] After the report had gone to press Libby, McNeill & Libby revised its sales figures for 1915 and 1916 on canned milk. See Exhibit XVII A, Note 3.

following letter from the Neenah Cheese & Cold Storage Co., a trade name of Armour & Co.

DEC. 4, 1917.

MR. HAROLD L. BROWN,
% Armour & Company,
Chicago, Ill.

DEAR SIR: We have one factory at Mineral Point known as the Barrelltown factory where we own the machinery and hire a cheese makers. We are receiving 2¢ a pound for making cheese and we pay the cheese maker 80¢ a hundred for manufacturing and furnish all the supplies and fuel.

We have kept a pretty close record of the earnings of this factory this year and find it is hardly paying interest on the investment. This machinery cost us about $650. We took it on merely in order to give Freund an opportunity to pull out of Mineral Point at the time they wanted him for Bloomer.

Now, we are advised by the Legal Department that we can not make contracts in our own name. We are afraid if we go out there next spring and try to contract with these farmers for their milk under the name of Armour & Co., they at are going to lose some of them as this question came up last spring and I quieted it by stating that Armour & Co., had nothing to do with it that the contract was between they and the Neenah Cheese & Cold Storage Co.

I understand that the other dealers around Mineral Point are trying very hard to get the farmers to operate their own factories and get away from this so-called make-up proposition because it is not paying.

Now, I believe we can dispose of this machinery to the cheese maker who is there now and who will still stick to us, at practically what we paid for it. Would you be interested in selling if the opportunity presents itself?

Yours very truly,

NEENAH CHEESE & COLD STORAGE COMPANY

JBMc/

Unless, therefore, it were necessary for the purpose of control or of improving the product, any considerable ownership and operation of factories so numerous and widely scattered by the packers would hardly be expected. As a matter of fact the big packers own or operate but few. The Western Meat Co., San Francisco, controlled by Swift & Co. through affiliation, operates cheese factories in California as follows: Patterson, Manchester, Requa, Point Arena, and Bolinas. Buying stations for these are found at Tranquillity, Volta, Los Banos, Elk Grove, Williams, Willows, Corning, Valley Ford, and Bolinas, all in California, and at Fallon, Nev.

Armour & Co. reported no cheese factories operated by it or its subsidiaries in 1918, though later it admitted its operation of such factories.

Between the manufacturing of cheese in the hundreds of small factories throughout the country and the wholesale marketing of cheese by the distributors, stand the large cheese dealers, who, having the capital and the storage facilities required to carry the cheese, buy it up as it is produced week by week, storing it and letting it go as they may deem market conditions warrant. One large dealer can care for the output of several hundreds of factories.

If these cheese-dealing concerns, which comprise almost the sole outlet for the most of the cheese, are in such number and degree controlled by a single interest or combination of interests that a large measure of competition among them in buying the cheese is removed, control over the producers' end of the industry, over prices paid to the producers of milk, will be exercised just as effectively as and with less effort and expense than through control by ownership or operation of factories.

The following letter by the Neenah Cheese & Cold Storage Co., controlled by Armour & Co., indicates its policy towards the factories. If they break away, they run the risk of being black-listed. The last sentence directs that, where possible, the price shall be left to the buyer; otherwise, by inference, that the usual practice of paying the Plymouth board price shall be followed, which, as pointed out elsewhere,[1] is manipulated by the big packers.

Nov. 24, 1917.

Branches:
Neenah, Mineral Point, Richland Center, Wis,

GENTLEMEN: We are still of the opinion that some of our competitors may turn down factories before winter is over. Now there is just a question in my mind as to whether or not we should take them on in case they come to us. Think you just better use your own judgment in regard to this. We don't want to turn down a good factory; in fact, if a good factory comes, we would rather take them on and turn down one of our own poor ones.

You can put the proposition up to the cheese makers in this way—that conditions are bad and if we take the cheese on we run a big chance of taking a loss more or less. Tell them it is customary with some of these cheese makers to come to us when they need help and as soon as somebody comes along and offers a premium they will switch over, so if you take them on this winter, take them on with the understanding that we are to have their cheese for the summer months next year. In fact, would get them to sign an agreement to this effect. There may be some of them that you could convince that if conditions are bad enough so that really you should not buy them on the basis of Plymouth but at the very best price we can pay them.

Yours very truly,

NEENAH CHEESE & COLD STORAGE COMPANY

JBMc/

Control of the board price by the packers, an understanding among themselves that this price or a stipulated premium thereon shall set the limit paid to factories, and a more or less consistent policy in the division of factories among themselves place the factories at the mercy of the packers.

Thus, the cheese dealer rather than the manufacturer is the key to the packer's dominant position in the cheese industry. All of the Big Five, except Wilson & Co., Inc., were found to be in control, through

[1] P. 195. See also Report of the Federal Trade Commission on the Meat-Packing Industry, Pt. II, pp. 134–144.

stock ownership and contract or working agreements, of large concerns purchasing cheese directly from the factories.

Demcey & Sibley Co., Cuba, N. Y., entirely owned by Swift & Co., and now known as Swift & Co., Inc., is a cheese concern, buying from 24 factories in New York and 1 in Pennsylvania.

The Pauly & Pauly Cheese Co. has five branches in Wisconsin, in addition to the main plant at Manitowoc, for collection and storage of cheese: Green Bay, Marathon, Edgar, Sturgeon Bay, and Sawyer. These branches and the plant at Manitowoc were reported as purchasing from 202 factories producing cheese. In addition, the Pauly & Pauly company takes the entire cheese collection of the H. Blanke Cheese Co., Plymouth, Wis., paying the expense of running this concern and allowing it one-eighth cent per pound for buying. The H. Blanke Co. collects from 35 factories. The entire sales of cheese by the Pauly & Pauly Cheese Co. in 1917 amounted to $6,299,245.81. Of this total 79.41 per cent was sold to Swift & Co., which appears to receive preferential treatment amounting to a working agreement.

Armour & Co. owns the Neenah Cheese & Cold Storage Co., Chicago, Ill., which has branches at Richland Center, Mineral Point, and Neenah, all in Wisconsin. This company purchases from 98 factories. In addition, it takes under contract the entire collection of Bernhard Schreiber, Sheboygan, Wis., from 18 factories.

Fifty-one per cent of the C. E. Blodgett Cheese, Butter & Egg Co. is owned by Armour & Co., which controls the policies of the company and distributes practically the entire amount of cheese collected. In addition to the main plant at Marshfield this company has branches in Athens, Dorchester, Grand Rapids, Greenwood, Osceola, New Richmond, and Stanley, all in Wisconsin. These branches and the plant at Marshfield collect cheese from 216 factories. In addition, the company takes the cheese collected and manufactured by the Spencer Lumber & Supply Co. under the name of the Dairy Belt Cheese Co., which operates two cheese factories and collects from 27 others. The Cortland Beef Co., Cortland, N. Y., a branch house of Armour & Co., acts as a cheese-collecting agency for certain factories in New York.

Morris & Co., through ownership of 50 per cent of the stock and by virtue of agreement, controls the C. A. Straubel Co., Green Bay, Wis., and has preference as the distributor of the cheese collected. The C. A. Straubel Co. has branches collecting cheese in Marion, Shawano, Denmark, Antigo, Lena, Gillett, Luxemburg, and Clintonville, all in Wisconsin. These branches, together with the main plant at Green Bay, obtain cheese of 214 factories. Morris & Co. also controls Jacob Marty & Co., Brodhead, Wis., through similar stock ownership and agreement for preference as distributor. The Marty

company has a branch at Barnwell, Wis., which, together with the main plant at Brodhead, takes cheese of 22 factories.

The Cudahy Packing Co., through the Dow Cheese Co., Plymouth, Wis., which it owns, operates cheese-buying branches at Merrill, Fond du Lac, Thorp, Curtiss, and Boscobel, all in Wisconsin. These branches, together with the main plant, buy from 101 factories.

Wilson & Co., Inc., appears to have no direct interest in any cheese companies, but nevertheless is a distributor of importance, purchasing the cheese from other companies. It is, next to Morris & Co., the largest distributor of the cheese of the C. A. Straubel Co., taking in 1917 over 22 per cent of its total output.

It will be seen from the foregoing that the big packers are in direct contact with 935 cheese factories in Wisconsin which have commercial dealings with the thousands of farmer patrons in the districts contributing to these factories. And both Swift & Co. and Armour & Co. have this direct contact with many cheese factories and their patrons in New York.

Moreover, it was found that in addition to this direct contact with producers through ownership and control of these concerns, the packers were such large regular customers for the output of still other cheese companies as to make it doubtful if they could well be true competitors, even though the packers had no financial interest in the companies. In practically every case of large sales to the packers that came to the Commission's attention, it was found that, even where sales were made to more than one of the five big packers, some one of them was the chief customer as distinctly as in the case of a company owned and controlled by a single packer. Practically, these dealers are divided among the packers, only one large outlet being open to each.

Thus, F. C. Westphal, Randolph, Wis., operating 19 factories for the farmer owners and selling the cheese produced, handled a total of 2,421,454 pounds in 1917, of which 58.87 per cent went to the five packers. Morris & Co. alone, however, received 40.87 per cent of the total output, while Cudahy, Swift, Armour, and Wilson obtained, respectively, 7, 5.5, 5, and 0.5 per cent.

The Farmers' Cheese Co., Watertown, Wis., selling 2,216,659 pounds in 1917, sold 24.35 per cent to Swift & Co. and not as much as 1 per cent to any other packer.

N. Simon Cheese Co., Inc., Appleton, Wis., selling 4,658,306 pounds of cheese in 1917, sold 60.61 per cent to Morris & Co., while the combined sales to Swift, Armour, and Wilson were 7.42 per cent.

Schmitt Bros., Blue River, Wis., selling 4,510,937 pounds of cheese in 1917, sold Morris & Co. 59.33 per cent, Wilson & Co., Inc., 11.96 per cent, The Cudahy Packing Co. 3 per cent, and Swift & Co. 1.34 per cent.

Wuethrich Bros., Doylestown, Wis., disposing of 1,088,999 pounds of cheese during 1917, sold to Swift & Co. 44.27 per cent, Morris & Co. 18.29 per cent, Armour & Co. 12.18 per cent, and Wilson & Co., Inc., 1.24 per cent, over 75 per cent of total sales going to four of the Big Five, one of them as usual being preeminently the largest customer.

The largest independent whose total sales were obtained, collected in 1917 only 6,201,631 pounds from 65 factories in Wisconsin and 23 in Michigan. Of this amount 243,795 pounds, about 4 per cent, were sold to the big packers.

Wisconsin, with more than half of the cheese factories in the United States, produced in 1914, 55.6 per cent of the cheese of the country. Whatever interest or combination of interests dominates this great cheese-producing section is the dominating factor in the cheese markets of the United States. How important a factor the big packers are in the cheese business of Wisconsin is suggested by the figures in the foregoing paragraphs. Considerably more than one-half of its factories are dependent for their principal markets on concerns owned or controlled by the packers. Nearly another quarter of these factories look for their chief buyer to concerns which, so far as known, independent in ownership, are yet dependent for their main outlet on the packer's distributing system. That the Big Five are in a position to control 75 to 80 per cent of the cheese of the State is generally conceded.

During the fiscal year 1916 Swift & Co., including its subsidiary and controlled slaughtering companies, sold through branch houses 28,692,101 pounds of cheese. These figures, however, do not include sales made by other methods, as by direct consignment or through other selling agencies, as the car-route and provisions sales houses. The increase in this company's branch-house sales of cheese for the calendar year 1917 over 1916 "was better than 19 per cent," and for December, 1917, over December, 1916, was 51.2 per cent. In 1918 the total cheese sales of Swift & Co., not including companies controlled by affiliation, amounted to 64,072,000 pounds.

Armour & Co., the largest packer distributor of cheese in the United States, sold through its branch houses in its fiscal year 1916 nearly 29,000,000 pounds. Sales by branch houses of slaughtering companies controlled through affiliation are here included, but not the sales through selling agencies other than branch houses. Armour & Co. reports sales by all selling agencies (not including branch houses of slaughtering companies and other selling agencies controlled through affiliation) for the fiscal year ending October 28, 1916, 60,709,609 pounds and for the fiscal year ending November 2,

1918, 77,379,232 pounds, an increase of 27 per cent. Wilson's sales[1] for the same years were, respectively, 12,730,372 and 21,140,319 pounds, a gain of 66 per cent. Cudahy reports sales of cheese by all selling agencies for 1917 of 15,900,000 pounds and for 1918 of 24,100,000 pounds, a gain of 52 per cent in one year. (For greater detail on the sales of the four companies see Exhibit IX). No sales figures for Morris were available for 1918. The combined cheese sales, as severally reported for Swift, Armour, Wilson, and Cudahy for the year 1918, were 186,691,551 pounds. The total production of factory-made cheese in the United States in that year was 380,423,652 pounds.[2] In addition to this, some cheese is doubtless made on farms, but this would hardly be a real factor in interstate trade or in competition with packer-sold cheese. As in the case of butter, the reported packer sales fall short of the full selling strength of the Big Five, since they do not include the sales by branch houses of slaughtering companies and other selling agencies controlled through affiliation, and the sales of Morris are entirely lacking. This deficiency must be reckoned with before a basis can be found to arrive at the true packer proportion of cheese distributed. The current estimate of the trade, however, that the Big Five handle at least one-half of the interstate commerce in cheese would appear to be understated, since such part of the packer sales as was reported for 1918 amounted to 49.1 per cent of the total factory-made cheese of that year.

The packer percentages of the total stocks of cheese held in cold storage on the three dates November 30, 1917, March 31, 1918, and July 31, 1918, are uniformly high. These, together with other data, are given in the discussion of the packers' buying and marketing advantages. (See Chapter II, p. 102.) For the three dates these percentages for the Big Five, taken together, were, respectively, 33.35, 34.66, and 34.09.

Again, it should be noted that these percentages fall below what appears to be the actual position of the Big Five in the wholesale distribution of cheese, and for the same reasons as those stated in the discussion of their distribution of butter. That they should be found to hold a minimum of one-third of all the cheese in cold storage is significant in that practically this entire amount is handled by them in wholesale distribution on its leaving the warehouse, while, in addition to this amount, large quantities held in storage on these dates by independents are bought and distributed by the packers.

[1] Some duplication is involved in the Wilson sales, owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

[2] Figures furnished by the Bureau of Markets.

Section 2.—Concentration promoted by creamery methods.

INTRODUCTORY.—It should be understood, of course, that the packers conduct this part of their business in much the same way as do other large butter manufacturers and butter wholesalers. Their competitive relations to the producers of cream and to the manufacturers of butter are affected in no small degree by the fact that they are large merchants doing business on a national scale. Their large size gives them, up to a certain point, great advantage over their smaller competitors, an advantage, as has been pointed out in an earlier chapter, not always in the public interest.

Being packers with a great distributing system already in operation, they have other advantages over small and large butter manufacturers and dealers which they otherwise would not have; notably their control over cold-storage facilities and refrigerator cars, over numerous branch houses with storing and distributing facilities, and particularly their command of almost unlimited capital. These advantages make them superior in competitive warfare to their smaller rivals. Likewise their thorough knowledge of and control over butter substitutes and other foodstuffs give them additional powers over the market.

INFLUENCE OF THE HAND CREAM SEPARATOR.—Prior to the introduction of the hand separator the creamery was of necessity a small crossroads shop drawing its supplies from surrounding farms. The farmer had to cart his whole milk to the creamery, have the cream taken off by the power separator, and bring the skimmed milk back to the farm, or else skim the cream by hand and bring it to the creamery.

Because of the time consumed and the cartage expenses, the creamery obtained milk from within only a few miles, 10 miles being about the extreme radius. Any farmers beyond such radius were compelled to utilize their cream in making dairy butter which was taken to the country store, thence shipped to a manufacturer of packing-stock butter. Throughout the live-stock country there were vast areas which had no creameries and hence no available method of marketing cream as cream.

The introduction of the hand separator, invented by De Laval in 1879, gave the farmer a method of separating his cream with practically the same efficiency as could be obtained by the creamery. Inasmuch as butter fat constitutes only from 2.8 to 5 per cent[1] of the body of milk, a large saving was possible in eliminating the carrying of the residue both ways. Obviously much larger areas could be drawn upon for the supply of cream than for the supply

[1] Philadelphia Chamber of Commerce, Milk and Its Distribution in Philadelphia, 1917, p. 9.

of milk, the cost of transportation being the only limit on the distance, which in some sections is several hundred miles. This made the large creamery possible.

EXISTING TYPES OF CREAMERIES.—To-day there still exist numerous local individual creameries receiving their cream from nearby farms, and producing a high-grade butter for an established patronage in the local town. The individual creamery may be conducted on the plan of buying the raw material outright and making it into butter, or the raw material may be made into butter and sold for the farmers at a fixed charge or toll for the service performed by the creamery.[1]

The price paid for raw material is generally fixed by agreement or contract to pay for butter fat the price of butter currently quoted on a selected market, such as Elgin or New York, or an agreed number of points above or below the current butter quotation on the market selected.

Local cooperative creameries are owned jointly by the farmers of the surrounding community, a few shares sometimes being held by local merchants and others. The farmer members furnish the raw material in the form of milk or cream. The secretary and the manager have charge of the marketing of the butter and of the settling of the accounts with the farmers. The butter maker and other help are hired by the manager. In cooperative creameries the price paid for raw material depends upon the net returns from the sale of the butter.

An intermediate class of creameries consists of those which by favorable location (on good transportation routes from producing districts) receive their cream from farmers direct as well as cream brought to them by haulers who gather milk daily or cream two or three times a week from farmers. These creameries can not receive their cream in as fresh a state as can the local creamery and are generally compelled to use some neutralizer. Each farmer's material is weighed and a sample is taken. Upon arrival at the creamery the samples are tested, each farmer's butter fat is computed, and a record is made of the amount of butter fat in the cream or milk which he furnishes. The usual custom is to pay the farmer for the number of pounds of butter fat furnished, but in some instances he receives pay on the basis of the proportionate number of pounds of butter made from the material supplied.

The "centralizers," or large creameries, draw their supply of cream from a wide territory, collecting it through numerous buying stations. Instead of returning the buttermilk to shippers of cream, they sell or utilize it in some way, or throw it away. The buying stations may be located near local creameries and may engage in

[1] U. S. Dept. of Labor, Bureau of Labor Statistics, Bulletin 164, 1915, p. 19.

sharp competition with them for cream, or they may be located in places remote from local creameries where competition is less active.

The large creameries of the Fox River Butter Co., of the Beatrice Creamery Co., of the Fairmont Creamery Co., and of the big packers, especially of Swift and Co., are centralizers.

The A. S. Kininmonth Produce Co. of Winfield, Kans., 50 per cent owned by Armour & Co., is a typical packer centralizer. It buys and collects and sells cream, packing-stock butter, poultry, and eggs. It has one creamery at Winfield, Kans., but has 135 buying stations in Kansas and Oklahoma and 2 in Texas.

The average local creamery makes about 120,000 pounds[1] of butter a year, while the large centralizer creamery drawing its supply of cream from large areas makes several thousand pounds daily. The dairy division of the United States Department of Agriculture estimates that the cost per pound for the manufacture of butter decreases as the quantity manufactured increases up to 200,000 pounds a year, after which there is a slight increase. On this basis, the advantage to the centralizer in manufacturing cost has been overestimated, though there still might be some economic explanation of its existence in lower handling, storing, and distributing costs.

Disadvantages of the cream-buying stations.—The station system of collecting cream is not one which encourages the development of the best possible quality of cream, nor is the centralizer with collecting stations a creamery which can produce a standard of butter which will grade up to that of the local creamery. The cream buyer is usually a local storekeeper who does not always insist on the proper grading of the cream or criticize the product brought in by his customers. Moreover, it is very difficult to keep buying stations in proper sanitary condition. The usual station will take almost any grade of cream and in any quantity.

The cream collected by the cream stations and shipped to the centralizer is not merely sour, but generally has progressed so far from its fresh state that it has to be thoroughly neutralized with an alkali before it can be made into butter.

The packers' centralizers continue also to buy cream by the carload direct from dealers and from large milk farms, as do the Kentucky Creameries, of Louisville, Ky., owned and operated by Armour & Co. of Kentucky.

Section 3.—Effects of packer concentration on product and competition.

The concentration of the packers' butter manufacture into a comparatively few large creameries has far-reaching effects both on the quality of the product and on the packers' relations with their competitors.

[1] U. S. Dept. of Labor, Bulletin 164, 1915, p. 15.

LOWERING THE QUALITY OF BUTTER.—The creameries of the large packers are located at great distances from many of their buying stations. Thus the creamery of Swift & Co., at Hutchinson, Kans., has buying stations as far away as Hugoton, Kans., 207 miles distant; Midwell, Okla., where the nearest railroad station, Texhoma, is 250 miles distant; Logan, N. Mex., 370 miles distant; Hooker, Okla., 210 miles; and Optimo, Okla., 220 miles. The creamery of Swift & Co. at Wichita, Kans., has a cream-buying station at Canadian, Tex., 247 miles; and Hereford, Tex., 392 miles distant; the creamery of Swift & Co. at Denver, Colo., has cream shipped from Farmington, N. Mex., 492 miles by rail.

Shipping the cream over long distances is an important factor not only in concentration in butter production but, as pointed out in the foregoing section, in lowering the quality of the product.

Moreover, combining too many businesses under one roof, in order to make the whole a paying proposition, tends to insanitary conditions. Thus, of 47 cream-buying stations reported by one of Swift & Co.'s creameries, only 8 were operated exclusively for cream; 8 were in connection with poultry and egg buying; 10 with general stores, 5 with groceries, 7 in flour and feed establishments, 2 in meat markets, 2 operated by butchers, 1 in an oil dealer's store, 1 in a shoe shop, and 1 in a pool room.

CUTTING OFF CREAM AND MILK SUPPLY FROM INDEPENDENTS.—Several methods are used by the centralizers to cut off the supply of the raw product from the independent creameries.

One method is to accept from the farmers for a while all cream at a good price, irrespective of its quality. As soon as the packer's centralizer gets free rein in the district the cream prices become lower and the quality test more rigid.

Another method is to pay higher prices for cream, offering at the same time better receiving facilities and cheaper hauling. A striking example of this was the elimination of the Oregon Creamery Co., Oregon, Wis.

This company was a farmers' cooperative organization which drew its milk supply from the neighborhood and made butter or cream which it marketed through the Brooklyn branch of the Bowman Dairy Co., which agreed to take its products.

On the completion in June, 1917, of the condensery of the Wisconsin Dairy Products Co., an Armour concern, located at Stoughton, some 9 miles from Oregon, F. T. Paddock, the Armour milk solicitor, came to Oregon and tried to induce the local company and the milk producers in the vicinity to close the creamery and sell to him at Stoughton prices. The Oregon people were not disposed to agree to this arrangement. But Mr. Paddock declared his company would

have milk anyway. He thereupon erected a receiving platform in the public square at Oregon and announced that he would receive milk there at Stoughton prices and would assume all expense of the cross-country hauling to Stoughton. This detached some of the patrons of the creamery. Mr. Paddock also had a platform built very near the farm of one of the creamery's largest patrons and got his milk. People were given to understand that if necessary to get the milk the Stoughton wagons would even call at the farms. The cooperative creamery continued against this kind of competition for a month and kept losing patrons. They did not have capital or wagons and equipment for sending for the milk. Finally they saw it was a losing game and in order to get some income on the investment, on August 1, 1917, they rented the factory to the Stoughton company for a year and the latter company now use it as a receiving station from which they dispatch milk in wagons to Stoughton, 9 miles away. The former creamery patrons have become Armour patrons because there is no one else to buy their milk. The temporary platforms put in during the fight are no longer used. The farmers bring milk to the Oregon plant as before, under the Armour management, and with no assurance that any permanent benefit has been gained.

Analysis of the above practice shows that Armour & Co.'s success was due primarily to its command of capital and also in no small measure to the farmers' lack of solidarity and foresight. Farmer patrons of the Oregon cooperative creamery were more interested as individuals in the immediately higher prices for their own milk than in the success of their cooperative enterprise and in prices in the more distant future. Hence their desertion when Armour & Co. offered them inducements in the way of a shorter haul, a nearer receiving platform, or a higher price. This inherent weakness of the cooperative enterprise as commonly organized and conducted is ever present and acts as an invisible aid to the packers in their effort to cut off the supply of the raw product from the small creamery.

Again the packers adapt their competitive methods to fit the circumstances. Thus, at Ceres, Calif., the Swift & Co. cream-buying station picks up all cream on routes by its own trucks, saving the milk producers a trip to the cream-buying station.

At Stratford, Calif., about 280 miles distant from Los Angeles, Swift & Co.'s Hardwick house takes all cream delivered there by the members of the Stratford Portuguese Dairy Association at a price 5 cents per pound in excess of the Los Angeles quotations to the Association. At Seattle, Wash., Swift has solicited butter fat by endeavoring to hold his price above the Seattle market.

The same situation appears to exist at Reno, Nev. A letter written from Reno, December 30, 1918, is here reproduced in part:

In line with our letter to you of recent date, regarding the unfair business competition of the Nevada Packing Company, and Swift & Co., both of which firms are owned and controlled by Swift & Co., will say that both of these firms maintain traveling representatives throughout this state and California selling butter, eggs, and cheese.

Not alone do they have duplicate competition against us here in Reno, but they also have their representatives throughout the country section near here.

At present time they are paying 75¢ for butterfat, which is 9¢ over the top San Francisco Wholesale Produce Exchange quotation for extra butter, being quoted today at 66¢. Inasmuch as the San Francisco market is quoted 5½% higher than the jobbers pay for butter, you can see that they are paying extreme prices in this section for their raw materials for butter manufacture.

Good, legitimate competition is what we want here, and we hope that you will see that this is what we have. We are at present competing with two companies in this City of Reno, both of which should have the same name and be known to the merchants and people as one firm.

LOCAL PRICE DISCRIMINATION IN CREAM AND MILK PURCHASES.—The direct outcome of this securing of the cream supply from competitors by unduly high prices is price discrimination. The packer who overbids the independent creamery for cream or milk in one locality may in other places where there are no competitors pay below the market to make good his losses. This procedure inevitably undermines the small independent, who must rely on the local market for the cream it buys and the butter it sells.

It is almost impossible to prove any bad intent in the offering of temporarily higher prices to the milk producer, who is ever ready to accept them. But, in the long run, the effect of such a policy on the part of the packer's centralizer is almost always disastrous to the small independent and to the producer.

Rudolph Miller, operating the Macon Creamery Co., at Macon, Mo., testified at a hearing of the Commission in Chicago, Feb. 26, 1918, that during the past 10 years Swift has taken most of the butter business in that territory by establishing cream-buying stations and getting the cream from producers by paying them higher prices than local independent creameries could pay without a loss. At noncompetitive points Swift & Co. does not pay similar prices to the producer.

It was further stated by Mr. Miller that at Macon, Mo., the S. P. Pond Co., of Keokuk, Iowa (owned by Swift), paid 30 cents per pound for cream and at the same time paid only 27 cents per pound at New Cambria, Mo., 26 cents at Bucklen, Mo., 25 cents at Brookfield, Mo., 24 cents at Browning, Mo., and 24 cents at Medina, Mo. At the time Swift was paying 30 cents per pound for cream at Macon he was shipping butter to that point and selling the same to the

retail trade for 27½ cents per pound in competition with the Macon Creamery Co.

W. A. Kloepper operating the Decatur Creamery Co., at Decatur, Ind., also testified at the same hearing that Armour & Co. in competition with his company at Markle, Ind., pays more for butter fat than at any other buying station or at the Armour creamery; that Armour & Co. has absorbed much of the business of the Decatur Creamery Co. by paying high prices for butter fat. After having obtained the business and eliminated competition the prices for butter fat were reduced.

The Decatur Creamery Co. has three creameries, viz., Decatur, Huntington, and Markle, Ind. In the neighborhood of these three creameries there are five plants and 150 buying stations operated by Armour, Swift, and Morris. Swift's creameries are at Lima, Ohio, approximately 45 miles from Decatur, with 94 buying stations, and at Marion, Ind., approximately 42 miles from Decatur, with 15 buying stations. Swift has also a condensery at Berne, Ind., operated by Libby, McNeill & Libby, 12 miles from Decatur. Armour & Co. has a plant at Rochester, Ind., approximately 40 miles from Huntington, with 39 buying stations, and Morris & Co. has a plant, operated by Sherman White & Co., at Fort Wayne, Ind., approximately 20 miles from Decatur, with two buying stations. Of all the towns in which these 150 buying stations are found, in only one do the packers report that more than one of their number has a station. Though a few of these stations buying for different packers are located in towns not far apart, no instance has been brought to the attention of the Commission where more than the market price of cream was paid at such stations, unless an independent was buying or operating in their neighborhood.

THE MISSOURI CASE AGAINST CREAM PRICE DISCRIMINATION.—The cream price discrimination case prosecuted by the Attorney General of Missouri during 1914, 1915, and 1916 was started at the instance of complaints made by the Macon Creamery Co. The price discriminations cited by that company go back as far as 1908. The case ended with a fine of $5,000 for Swift & Co.

The first complaint was made by the Macon Creamery on July 20, 1911, claiming unfair competition on the part of their big competitors and asking legal protection. On July 28, 1911, the Macon Creamery repeated its charge and made the following statement in support of its charges:

Elgin market was 24¢ last week, we paid that price for cream f. o. b. Macon on Friday July 21st. we took a sample of cream and had it delivered to Pond Co. [a Swift subsidiary] and they paid us 25¢ for it a part of

the same cream was delivered to the same concern in New Cambria and there we received 21¢ for it on Saturday July 22nd. the same company paid 26¢ in Macon, 22¢ in Callao; 21¢ in New Cambria; 21¢ in Bucklin and 20 in Brookfield. * * * *

The Macon Creamery Co. said it had several times been invited to pool prices with its competitors, which it had declined to do.

On January 20, 1912, Rudolph Miller, president and manager of the Macon Creamery, again appealed to the Attorney General, stating that "the big creameries have been paying our prices or more at Macon, and wherever we get cream and at other places they pay from two to five cents less," and that they could not stand such competition.

On January 22, 1912, the complaint was repeated, and supported by new instances of price discrimination on the part of the S. P. Pond Co., of Keokuk (Swift).

On June 4, 1914, the Attorney General of Missouri filed a petition before the supreme court of the State for the appointment of an examiner to take testimony in the case of the State *v.* Swift & Co. for violation of the antidiscrimination laws of the State regarding the purchase and sale of milk and cream and manufacture, purchase, and sale of butter. Although butter-fat prices dropped immediately upon the filing of this petition, they became stronger again very soon, Swift & Co. paying 28 cents at Macon for cream, while at other places in the vicinity only 26 cents to 27 cents.

In November of the same year a suit was filed against Swift & Co., which continued paying 30 cents for cream at Macon and 27 cents at Clarence, a point about 12 miles from Macon.

In the spring of 1915 Mr. Miller of the Macon Creamery was urged by Mr. Kent of the Meriden Creamery and by the State Dairy Commission "to come together on a cream grading basis," which he declined to do.

A little later Mr. Miller began to feel somewhat uneasy about the workings of the antidiscrimination law and reported to the Assistant Attorney General that Swift was still paying 26 cents for cream at Macon and only 23 cents in Clarence; that at Callao, where Miller was buying some cream, the Camp Point people of Quincy, Ill., were paying even 28 cents and that Swift & Co. was buying the Camp Point butter, which Mr. Miller regarded as an attempt to put him out of business. He also reported certain price discriminations on the part of the F. M. Stamper Co., controlled through the W. F. Priebe Co., a Swift subsidiary.

That Swift & Co. admitted its guilt during the above investigation is shown by the following letter to the Swifts by R. C. McManus, their attorney:

CHICAGO, *July 4, 1914.*

Messrs. LOUIS F. SWIFT,
EDWARD F. SWIFT,
CHARLES H. SWIFT,
L. A. CARTON,
F. S. HAYWARD,

Alleged Violation Anti-discrimination Laws Missouri.

The Attorney General of the State of Missouri, according to the morning papers, has started an inquiry as to the method of Swift & Company in connection with the purchase of Butter Fats in Missouri.

From the telegrams, it would appear that the complaints arise through transactions of Swift & Company, Kansas City.

Missouri has a law, penalizing any purchaser of butter fat who for the purpose of injuring the business of the competitor pays more for the butter fat at any point in the State than is paid at other points in the State. The penalty is a fine up to $5000. and revocation of the permit of the guilty corporation to do business in the State. It is also imprisonment not to exceed one year for any guilty individual.

It is a fact that we have raised the price of butter fats at different points in the State of Missouri, and paid more than the market price at other points.[1]

The newspaper accounts would indicate that the operations of Swift and Company, Kansas City, are complained of. We think, however, that the trouble probably arises through purchases by stations under Swift & Company, Keokuk, Iowa, as we heard rumers [rumors] to that effect and had some correspondence.

In view of the seriousness of the penalties and the possibility of revocation of Swift & Company's license to do business in the State of Missouri, the writer is having Mr. H. B. Collins, who is at Ottumwa, Iowa, today, interview all the Iowa Managers who attend the meeting, and requesting him to send the facts in to Chicago to-night; also to be prepared to discuss same at Sedalia, Missouri, to-morrow, where its [it] has a meeting of the Missouri Managers.

I am sending Mr. C. J. Tressler to attend this meeting.

The matter has been discussed with Mr. Henry Veeder, who approves of this course.

R. C. MCMANUS

RCM/IOB

In view of the above admission by Swift's attorney of the price discrimination and in view of the repeated evidence submitted to the Assistant Attorney General by the Macon Creamery Co., the imposition of a fine is not to be wondered at. Swift & Co. had every reason to arrive at a settlement with the Attorney General, which was consummated on June 26, 1915, on the basis of a fine of $5,000 plus costs.

But this fine imposed on Swift & Co. did not greatly help the Macon Creamery. During the winter of 1915–16 the Macon Creamery Co. again pointed out to the Attorney General that the F. M. Stamper

[1] Italics by the Commission.

Co. was paying 1 cent less at La Plata than at Jacksonville, and still later, 5 cents less at La Plata than at Cairo.

On May 26, 1916, the Assistant Attorney General advised Mr. Miller that the F. M. Stamper Co. had been investigated by him personally and that he found that this firm paid the same prices to all local cream buyers, although the latter varied their prices and made different profits. Mr. Miller maintained that the higher prices could not possibly be paid by the local buyers, all men of small means, without help from their big customers. He pointed out that these buyers were getting commissions on the highest priced cream from their customers. Price discriminations, so it was testified, continued after the imposition of this fine. Obviously it was more profitable to Swift & Co. to pay the fine and continue its price-discrimination policy than to desist from it.

PRICE AGREEMENTS.—Another aspect of the competitive situation is seen in the direct or indirect price agreements[1] between packers' agents or packers' subsidiaries and their so-called competitors. Such price agreements really wipe out the last vestige of a free independent market. The markets for milk, cream, and butter then become what the big packers desire them to be.

The letters from the Henry Veeder files and a memorandum given below, while apparently part of a campaign by Swift & Co. to induce its agents to eliminate price agreements, show the methods actually used in fixing prices for cream. Advertisements, card prices, and telephone calls are used with a view to keeping the prices agreed to.

SWIFT & COMPANY
UNION STOCK YARDS
Chicago.
Law Department

JULY 24, 1914.

MESSRS. ALBERT H. & HENRY VEEDER,
Attorneys & Counselors at Law,
American Trust Building,
Chicago.

GENTLEMEN: Herewith letter from Swift & Company, Hutchinson, Kas., enclosing advertisement of our cream buyer at Kingman. Notice that the advertisement is signed by agents of four creameries, and that they have agreed on butter fat price.

Is it your recommendation that our name be removed entirely from such ads or that we merely eliminate prices?

Please advise.

Yours respectfully,

R. C. MCMANUS,
CJT [C. J. TRESSLER]

CJT-AD.

[1] Further discussion of this subject and evidence showing the prevalence of such agreements are found in Pt. II of this report, pp. 146–154.

JULY 27-1914.

R. C. McMANUS, Esq.,
% Swift and Company.
Chicago.

DEAR SIR:—I herewith return newspaper clipping and letter covering advertisement to creamery patrons fixing prices and grades for cream. I certainly think that such an advertisement as this should not be published by the parties jointly. I can see no harm in the parties agreeing upon grades for cream, but would think it better that they publish such grades for cream separately than that they do so together. It certainly is not advisable for the parties jointly to publish their prices, and I believe it would be better for them not even to publish the same prices separately. It would be better if prices were not referred to in any open advertising matter. In advertising some expression could be used to the effect that prices may be obtained upon inquiry, but I would not think it advisable that the same prices be published at the same time by all the parties, even if such prices are, in fact, offered by the parties at the same time.

Sincerely yours,
HV-NA
L

FEBRUARY 10, 1916.

Mr. H. B. COLLINS,
Second Floor.

Attached hereto is a copy of a report of Auditor Fahey in regard to the method used by Lincoln, Neb., in purchasing cream.

Conferring or writing to a competitor to find out why their agent is exceeding the card price and the subsequent instruction to the agent to have his prices correspond with the cards and the agent's compliance therewith, is in itself a violation of both State and Federal laws. This practice should be stopped immediately.

In this connection will say that our recent investigation disclosed that prices paid by creameries in Nebraska are more nearly uniform in price and date effective than those of any other state, indicating that Lincoln has not been properly instructed or that they are not following instructions.

Will you please take up and correct, advising what has been done.

(Signed) R. C. McMANUS,
F. L. H.

Law Dept.
FLH*W
Copies to
Messrs. F. S. Hayward
E. L. Ward
Henry Veeder.

Unsigned memorandum from Swift & Company's files:

Branch House correspondence has been inspected from 7/31 to date, and none of the correspondence violates instructions as outlined in your circular of June 26th.

The following is method of keeping prices in line here.

Our card goes out the day after competitors card, bearing same price. Elgin market is supposed to control this.

When we find that a certain station is not following card price they call him up to find reason and his statements in most cases are, that competitor is paying the price, and he has to do the same to get the business.

In order to keep station on profitable basis, this office confers with competitors to find why their agent is exceeding card price, and competitor instructs his agent to get his price to card basis.

I believe this method is used among all these produce houses, altho in most cases managers and solicitors wont admit it.

Believe it would be an easy matter for an outsider to get evidence that it is pretty well understood between our houses and competitors as to what prices are to be.

MARCH 1, 1916.

Mr. H. B. COLLINS,
Second Floor.

Below is an extract from Auditor Fahey's report on conditions at Springfield, Mo.

> "Branch House correspondence has been inspected from 7/13/15 to date, and none of the correspondence violates instructions as outlined in your circular of June 26th.
>
> There is a definite understanding between this plant, the Springfield Creamery and the Meriden Creamery at Kansas City, as to what butterfat prices will be. This is handled by having Springfield Creamery call up the Meriden, find out what this price is to be and then call our office. Understand other creameries call the Meriden the same way. In other words, The Meriden Creamery makes the prices which govern the others."

This should be corrected and stopped. This same situation has been coming up at Springfield, to the writer's knowledge, since the time of taking testimony there in our Anti-Discrimination suit. We tried to get conditions changed then, but have heard repeatedly of the continued violation along this old line. It should be stopped at once.

For your information again repeat that Mr. Morgan, who was formerly manager at Springfield, insisted on relating a transaction similar to the one mentioned in the above report in his testimony taken in our Anti-Discrimination case. He did not seem to know that there was anything unusual in this transaction, and I do not believe he ever got it through his head that there was anything wrong.

CJT*LL
Law Dept.
Cc–HV

A careful reading of the first two letters pertaining to the price agreements practiced by Swift & Co., of Hutchinson, Kans., shows that actual price agreements have existed. The advice of Mr. Henry Veeder, attorney of Swift & Co., is not to discontinue such price agreements, but merely to stop advertising them. Mr. Veeder's advice is to comply with the letter, not the spirit, of the law. He says, "I would not think it advisable that the same prices be published at the same time by all parties, even if such prices are in fact, offered by the parties at the same time."

The unsigned memorandum deals with the Swift circular of June 26, and the other two letters deal with the card-price system as practiced by Swift & Co.'s purchasing agencies. This correspondence establishes the fact that cream prices are arrived at jointly by Swift & Co. and its so-called competitors.

Incidentally it is interesting to note that in this instance it is Swift & Co.'s manager who is complaining of his "competitor's" higher prices. It is reasonable to assume that wherever the packers have established their grip on the market they no longer are willing to indulge in raising the prices of cream to the farmer; rather they use their influence over their so-called competitors to keep these prices down.

The memorandum and the last letter, dated March 1, 1916, addressed to Mr. H. B. Collins, manager of Swift & Co.'s produce department, lay bare the price-fixing machinery in its simplicity. It shows that such price-fixing agreements among two or more creameries in any place need not be recorded or advertised in any shape or manner in order to be effective. Mutual phone calls "to find out what the butter fat price is to be" is all that is necessary to carry such an understanding into effect and actually to make the market.

The local market need not be "made" even by the big packer's creamery. It may be made by another creamery which has, however, previously called up and consulted the packer's creamery as to its ideas about the price. If it can not be held that the packers' creameries make the prices of cream, it surely can be said that these prices are set with their advice and consent.

The price-fixing power of the packer cream-buying stations and their lowering influence on cream prices paid by Swift & Co.'s competitors are established conclusively by instructions of April 11, 1916, addressed by a local office of Swift & Co. to its Eldora, Iowa, branch, and reading as follows:

DEAR SIR:—Would like to have you make your station price 32c upon receipt of this letter. Eastern butter markets are all lower and we must get our station prices to a lower basis. If for any reason our competitors will not go to this basis, please call us up.

Yours respectfully,

SWIFT & COMPANY

On the other hand, the milk producers have encountered considerable difficulty when they tried to fix the prices of milk. The southern Wisconsin farmers, for instance, tried to fix the prices for milk at $3.42 for October, 1917, an increase of $1.22 per hundredweight over the September price of $2.20. Immediately the distributors made complaints and a criminal action was started against the farmers under a Wisconsin statute for conspiracy in restraint of

trade. The matter was finally settled by a milk committee appointed by the Food Administration, the interested parties agreeing to abide by its decision. That committee fixed the milk prices for February, 1918, at $3.07 and for March, 1918, at $3.10.

REBATES TO FARMERS.—Little is known about packer's buying stations giving rebates to farmers on cream. As price discrimination, for which secret rebates are generally a cover, is forbidden by Federal statute and the laws of many States,[1] all such matters are handled in the most confidential manner.

The two letters quoted below give a glimpse of what has been done by certain packers' stations to undermine their competitors.

Particular attention is drawn to the second paragraph of the second letter, from the buying station at Wakeeney, Kans., describing the different methods of settling the rebates.

MARCH 2, 1916.

SWIFT & COMPANY,
Denver, Colo.

We have a letter from Swift & Company, Hutchinson, Kansas, saying that you have been rebating to the extent of 1–½c at Wakeeney, that the matter has come before the Attorney General of Kansas and that he is about to start an investigation.

Please give us full particulars. Awaiting a prompt reply,

SWIFT AND COMPANY
Per CHARLES J. TRESSLER

CJT*LL
Cc–H. V.
H. B. C.

WALTER F. SWIGGETT

WA-KEENEY, KANSAS.
6/21/15.

SWIFT AND COMPANY,
Denver, Colo.,

GENTLEMEN: At the out-set let me correct a statement I made over the 'phone this morning when I said the Farmers' had *published* a 2¢ guarantee on cream. I was in error and cannot find anything in the papers out of line. It is a fact however that they *talked* a 2¢ rebate or dividend. Their station has not been very profitable and I do not know for sure that they have paid a dividend at all from the cream dept.

You will find that I began paying the 1½¢ about June 26th last. The Jensen company here had on June 1st, either to meet this 2¢ talk or over [offer] a rebate really paid by the Farmers' at Voda—8 miles west—put an [on] a 1½¢ rebate—to be paid at the end of the month. They were getting some of my business and with Mr. Holway's personal consent, I met the 1½¢ on about

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[1] Thirteen States (Indiana, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, Oregon, South Dakota, Utah, Wisconsin, and Wyoming) prohibit, under certain conditions, purchases at a higher rate in one locality than in another. (See Report of Commissioner of Corporations, Trust Laws and Unfair Competition, 1915, pp. 187–188.)

the 26th of June last. Belle Springs and Beatrice fell into line in a day or two. I pay the 1½¢ along with the check, Beatrice pays the *cash* along with the check, Belle Springs now includes it in the check and I think Jensen pays at the end of the month. It is my understanding that the Companies stand the 1½¢ in each case. The Farmers' have not paid this rebate and are not supposed to only as dividends to Stockholders.

I have said very little about this rebate out-side, that is, as to who stands it, etc.

It is no doubt a fact that this 1½¢ has broken into their business. They are now buying independent and I understand are getting 25½¢ here for butterfat. Many of their customers [members] are ready to switch over and the same may be said of many of ours in the event the 1½% is cut out. It seems to me (and *us*) that it is imperative to continue the present deal in some form. I feel quite sure they will now run away with us if it is re-moved. I again ask that in the event you think it necessary to remove it that you come and look the ground over before doing so.

The Belle Springs operator had word from his manager that he, the manager, would interview the Attorney General today and then advise. We are afraid he will not present our case very well as the Belle Spgs people have recently made a contract with the Farmers' at Ellis and I understand they have a few other Farmer stations.

As the Jensen are still paying the 1½¢ I also paid it today—I believe you would have me to meet competition. Advice me as to price and, too, give me a line as to my reply to the Attorney Gen.

Yours very truly, W. F. SWIGGETT

P. S. Rec'd your wire but am unable to get any hens.

Section 4.—Packer division of milk-producing territory.

ABSENCE OF GENUINE INTERPACKER COMPETITION.—The dairy manufacturing plants of the big packers are so located that any one of their number need not draw milk or cream from producers who deliver their product to the plants or buying stations of any other one of the five.

For instance, no condensery of Libby, McNeill & Libby would cut into the supply of the creameries of either Swift & Co. or Armour & Co. or any of their subsidiaries. The division of territory continues to be quite as complete when milk buying for condensing and evaporating is included with cream buying for butter making. Should there be danger of real competition between creamery and condensery, due to the zeal of some individual employee, the matter is brought to the attention of the respective department managers and adjusted. The same holds true as between the condensery and cheese factory.

It has been pointed out in another part of this report[1] that 1,561

[1] Report on the Meat-Packing Industry, Part II, page 145. Since issuing Part II the Commission has identified other concerns as belonging to the Big Five group. The total number of creameries and cream-buying stations, as shown on page 153, is 1,621. The number of condenseries, as shown on pages 157, 158, is 16, and the number of cream-buying stations for condenseries is 16, making a grand total of creameries, condenseries, and cream-buying stations of 1,653.

creameries, condenseries, and cream stations of the packers were reported to the Commission, of which 1,262 were of the Swift group and 293 of the Armour group. Of the 1,561 locations mentioned there are only 29 towns where cream-buying stations of two or more packer groups were found. In 25 of these Armour was represented by the A. S. Kininmonth Produce Co., which had only recently been acquired by Armour & Co.

The following letter by W. F. Jackson (assistant manager in the produce department) to Edward F. Swift describes the gradual spread of the Swift produce-buying houses in certain territories under special consideration and incidentally points out the sections in which others of the five packers are entrenched or toward which they are looking:

OCTOBER 26, 1917.

MR. EDWARD F. SWIFT,
Second Floor.

Referring to the attached, I will give you by states the houses we are operating in the territories mentioned:

Michigan:

We have a large plant at Alma, which we have been operating for ten years with satisfactory results, handling all kinds of produce, together with raising about 35,000 ducklings per year.

Cadillac—built our own building a year ago for handling creamery. We are figuring on putting in a feeding station and additional cooler space.

Ohio:

We have our own building at Lima, built four years ago, where we are doing a large and successful business.

Defiance—bought out a dealer three months ago. We are making additions in the way of a cooler. Expect to ask you for authority later to put in a creamery.

Cincinnati—We have been occupying top floor of the beef house since 1912. Results, however, are unsatisfactory, on which we are writing you in another letter.

Indiana:

Five months ago, we purchased the firm of Grant Bros. who had plants at Marion and Kokomo. We are adding a creamery at Marion and a feeding station and cooler at Kokomo. We expect to handle a large volume at these points.

Morris & Co. have a produce plant and cold storage building at Ft. Wayne, operated under the name of Sherman White Co. Mr. White has charge of the Produce Dept at Morris & Co., and was formerly President of the Clarinda Poultry, Butter & Egg Co. and the S P Pond Co., whom we bought out. They handle a full line of produce, including the manufacture of creamery butter and at the present time are handling more business than we are out of Indiana, although, with the improvements we are making, we feel that we will do more business than they will next year.

We draw some stock out of Indiana however, through our Lima house and when our new Decatur, Ill. plant is finished, will draw some stock to that house.

We have already investigated the territory around Marion, Ohio with view of asking for permission to put up a plant at that point, but we are still undecided as we have a couple of other points in Ohio that we are going to investigate.

We also have one or two points in South Central Indiana and South Central Illinois, which we are going to investigate and will put the proposition of entering these territories up to you later.

For your information A & Co. are operating produce houses in northern Indiana, they having taken over Beyer Bros. who are an old Indiana firm, with their home office at Rochester, Ind. It has also been intimated to us that A & Co. are contemplating a house in Illinois.

W. F. J.

Produce Dept.
WFJ MCS

The following letter written by Robert G. Morey, president of the Wisconsin Dairy Products Co. (a subsidiary of Armour & Co.), operating a plant for manufacturing condensed and evaporated milk at Stoughton, Wis., to F. Edson White, vice president of Armour & Co., discloses a desire (fourth paragraph) on the part of Armour to secure and hold a certain milk-producing territory for a group of big milk interests, Armour and Libby (Swift) among others.

WAUKESHA, WIS., *Dec. 18, 1917.*

MR. F. EDSON WHITE,
Armour & Company,
Chicago.

DEAR MR. WHITE:—Your kind favor of December 17th is to hand. In reply would say that there is no question in my mind whatever but that a considerable part, and possibly all of the difficulty in coagulation of our milk in November was due to the fact of Mr. Paddock being away from Stoughton; for the simple reason that I have never known the time when Mr. Paddock was on deck at Stoughton when milk came in affected more than one day. If it came in wrong at any time, he had it righted within twenty-four hours. There was no severe weather in November, in fact we had better weather in November than we had in October. It is simply the same old story with farmers; when the warm weather is over and it turns cold, they feel that they can take less pains with their product.

We generally have our trouble with farmers in spring and fall, March and April, and October and November. In the intensely hot weather in the summer they are usually up to snuff on care; also in the severe weather in winter, otherwise than freezing we do not experience the difficulty that we do in October and November.

I also understand we are having some difficulty with our sterilizers and this may have had some influence, but fundamentally for ten days at least the milk came in, in a condition not up to par, and that is the foundation for the trouble.

The Universal Creamery Co. seems to be some Greeks who are in the milk and ice cream business in Chicago and Janesville, if I am correctly informed and although they are not formidable competitors, the farmers and business men at Milton Junction had gotten into the frame of mind where they were determined to have something in the nature of a local plant. We had all lined up on an inexpensive intake station where we could later have put in a condensing outfit to reduce the cartage to Stoughton, as our flow greatly in-

creased. I am satisfied that forty or fifty thousand pounds could be rounded up around Milton Junction as a center, and I was exceedingly anxious to close this deal when talking to you, for the reason that it would give us practical control of all points between Milwaukee and Madison on the Prairie du Chien division on the C. M. & StPaul, that could possibly be opened. I personally now control Genesee and North Prairie, the Libby, McNeil & Libby people, Whitewater; and we would then control Milton Junction and Stoughton which would cover everything from here to Madison. If our friends Libby, McNeill and Libby and the Carnation people, or Kee & Chappell were getting the benefit it would not be so bad, but as long as everybody has lost out, why it has not helped any of us.

We are taking surplusses from Sparta, Wisconsin, on the basis of the rate we are paying at Stoughton plus fifteen cents freight. This should have covered our Milton Junction cost over and above what we can collect from the farmers for freight and have a steady large feeder hearer [nearer] home. The two points of Stoughton and Milton Junction should develop with proper handling to 100,000 at the low and 200,000 at the high, which would give us a whale of a good business at our Stoughton factory.

Please do not mistake me, as I am not bringing these matters to your attention with any small or selfish feeling, or criticism, or soreness, but I do want you to be posted on matters of this importance so that when I come to you for advice you will have the information in hand from time to time regarding the developments. There isn't any question about the value of your advice if you only have the information in hand to judge from, and I know how difficult it is for me in my business to make correct decisions without information.

We are coming along nice at Stoughton and we are going to do better, but we have always got to bear in mind that our supply is fundamental both in quantity and quality. You can work up a better product with an A1 supply, while if your supply is off to any great extent, your perfect factory operation will not be able to make it right.

I am just in receipt of a telegram from the National Canners Association at Washington as follows: "Army New York need large allotment milk, export cases, prompt shipment. Wire amount you can handle." I learned over the phone that Mr. Pfeiffer is out of the city and just talked with your Mr. Davis and he has instructed me to accept an order for two thousand cases. This order you see nets us $5.65 at the factory, no discount and no freight, *which gives us about 45¢ margin over and above our regular business and makes it look pretty good.*[1] The boys and I had a most enjoyable and instructive trip through your wonderful plant the other day, and marveled greatly at the speed of operation and the moving platform. We feel in love with the appearance of the refrigerating room and the finished product which looked certified in every way.

Hoping this finds you well and that you will have a happy holiday season, believe me,

Cordially yours, ROBERT G. MOREY.

A further evidence as to the division of territory among the different packer interests is furnished by the letter below written by J. B. McCready, manager of the Armour-controlled Neenah Cheese & Cold Storage Co., at Chicago, Ill., to S. D. Cannon, manager of the plant at Neenah, Wis., dated May 12, 1917.

[1] Italics are the Commission's.

It will be noted that the fourth paragraph in the letter refers to Straubel's plant at Clintonville, a Morris dependent. It was arranged that the Blodgett and the Neenah, both Armour concerns, should not conflict in any way with the Morris' interests.

MAY 12, 1917.

Mr. S. D. CANNON,
Neenah, Wis.

MY DEAR SAM: Replying to yours of the 11th, will say that we had already gotten the dope regarding the lots at Colby as the deed showed this itself. However, you are mistaken about the Country Seat of Marathon Country being Neilsville—it is Wausau. Neilsville is the Country Seat of Clark County.

No doubt you got our orders for shipment from Shawano. Hodgson Bros. & Rowson wired these orders yesterday and we mailed them to you last night. These cheese were bought at 21¼¢ F. O. B. Chawano from Straubel and credit J. H. Dow Co., with an eighth cent brokerage.

We are not surprised that the Phenix Cheese Co., are getting their cheese from Appleton. We are mighty glad we have not got them this week at ½¢ over the market altho we may be glad to have them before the year is over as we are afraid the market will go up next week, altho no matter how high they put it, don't believe we can sell them at any better price than we are getting to day.

In regard to Straubel's plant at Clintonville, this proposition was put up to Blodgett first and he took it up with Straubel. I guess the arrangement is that there will be no confliction with anything that we or Blodgett may be handling near there.

If you are short of anything on your last car for Hodgson, try and make it up with double or triple Daisies so as to get the weight. We want to get away from this shortage business if we possibly can.

Yours very truly,

NEENAH CHEESE & COLD STORAGE CO.

JBMc/

HOLDING TERRITORY AGAINST OUTSIDE COMPETITION.—The letter below by F. S. Hayward, secretary of Swift & Co., to Edward F. Swift discloses one of the methods used by Swift & Co. to suppress competition in territory which Swift considers as belonging to his company and from which the latter has been drawing cream for its creameries. Operation of the new plant at a loss is proposed if necessary to bring competitors "around to a reasonable view of the matter."

JUNE 26, 1916.

Mr. EDWARD F. SWIFT,—

Referring to the proposition at Cadillac, Michigan, and returning herewith Mr. Collins' letter to you under date of June 26th:

I have had Mr. Traynor in on this and we have gone over the matter pretty thoroughly with Mr. Collins; and it is our vote that Mr. Collins' recommendation be adopted, i. e.—that we secure a suitable location at once and proceed to build a moderate kind of a house to take care of our business.

It looks to us as if we could not afford to let these people come in and take our business away from us in any such highhanded way as they have started out to do. We think the surest way to have trouble with our Managers all over the country would be to let this man Sigler get away with what he is

undertaking, and even if it should cost considerably money to thrash this thing out, we believe it would be well spent in the effect it would have on our Managers of this kind generally.

There seems to be considerable territory tributary to Cadillac that we have not been able to work on the basis of shipping the stuff to Alma, that could be worked to good advantage with headquarters at Cadillac. The first year we would probably have to operate at some loss, but while we were doing this, the probabilities are that the other people would be losing more than we would, and we think in the course of time this would bring them around to a reasonable view of the matter.

Answering your inquiry on the back of Mr. Collins' letter as to whether something could not have been done in time to stop this—there is no doubt but what if we had put in facilities in Cadillac this spring these people would not have taken this step.

As to the liability of having this kind of thing happen all over the country, I presume we are liable to have it happen most anywhere and most any time. We think the surest way to kill it off would be to start right now and show these people that it is not such an easy matter to come in and take our business away from us as they seem to think.

Mr. Collins suggests that if we decide to carry out the above plan of building a house at Cadillac, it might be well to have some one go over and put up a good stiff talk to these people; tell them that we are going to hold our business at all hazards, and at any cost—and see what effect it will have on them. Mr. Collins does not believe they will back up, but I believe it would be a pretty good thing for our business to state openly and positively that we are going to stay there, and circulate it around the country buying stations as much as possible.

F. S. H.
Jun. 26, 1916.

On the other hand, Swift & Co. does not shrink from the expense of buying out smaller competitors or putting up a new creamery of its own in order to invade a new territory already well provided with independent creameries. The attached report of February 21, 1917, by H. B. Collins, Swift & Co.'s produce department manager, to Swift & Co., and the two subsequent letters dated March 2, 1917, and May 29, 1917, respectively, are self-explanatory.

SAN FRANCISCO, CALIF.
Feb. 21, 1917.

SWIFT & COMPANY,
PRODUCE DEPARTMENT,
Chicago, Illinois.

—CREAMERY FOR SAN FRANCISCO.—

GENTLEMEN: The creamery situation in California seems to be working down to a basis of

1st A number of well conducted cooperative creameries with a satisfactory outlet.

2nd Creameries operated by distributors such as the California Central Creamery Company, Los Angeles Creamery Company, Swift & Company, Los Angeles and Western Meat Company;

and it is the writer's opinion that there will be the only two factors that amount to anything in the creamery business. There are a number of other

smaller creameries but their volume is more or less irregular; they have local trade; they are not well conducted and the quality varies materially.

It is, therefore, absolutely necessary in order to do a growing butter business in any of our Pacific Coast Houses to have a substantial source of supply and I think this can only be secured by ownership of our own creameries. The situation in this respect has worked out in an excellent manner for Swift & Co., Los Angeles and the Western Meat Co. I will report on Union Meat Co. and Swift & Co., Seattle, later.

Messrs. Hopkins, Cronburg and the writer have looked over the situation here carefully in different territories; have followed up numerous sources of information and find it even now a very difficult matter to get a creamery location with desirable features.

We have, however, located a creamery plant at Ceres, Calif., 120 Miles from San Francisco and 5 miles south of Modesto in Stanislaus County, the largest dairying country in the State. This creamery is owned by Scheer Grand, wholesale distributors here in San Francisco; was for sale 3 years ago and we have secured an option on this as per attached copy. We also attach a copy of the inventory as taken at the end of December, 1916.

Mr. Hopkins and the writer visited that territory some few days ago, and while we were not able at that time to make a detailed inspection of the plant, it seems to be a completely equipped, average moderate size country creamery. They are at present making 3,000# of butter per day and we estimate the capacity up to 6,000# per day. The competition is severe in that territory just the same as it is in all the other heavy producing alfalfa districts whose volume runs fairly uniform throughout the year, the largest competition being the Modesto Creamery at Modesto, an exceptionally well run, semi-private and co-operative, owned and conducted by the prominent business men of that city.

There is also another creamery at Modesto run by Sherry Brothers. Further, the Borden people are building a condensing plant at Modesto but they claim they will not go over 5 or 6 miles for their product. This will make aggressive competition for the Modesto Creameries and will, in a measure, make additional competition at Ceres.

However, we want you to clearly bear in mind that there is no district out here that does not have plenty of the most severe creamery competition and that every factor connected with the buying, operating and selling of the butter is handled up to the highest efficiency. This is the situation at Hardwick, San Luis and all other heavy producing districts.

We propose to handle this matter as follows:—

1st It is claimed the inventory has been depreciated from new cost about 25%, and in glancing over it we should judge this to be the case. The option was taken with a view of our being able to further analize the territory, inspect and value the machinery and have a hold on the creamery.

2nd If the situation develops as favorable as we expect it to, we desire to authorize Mr. Hopkins to make the closest trade possible under the inventory or option value.

We would, therefore, on receipt of this letter, like to have you submit the matter to the Branch House Department, Mr. Edward F. Swift's Office, Mr. L. F. Swift and Mr. F. S. Hayward for approval to close a purchase for this property at the lowest price possible, provided, after inspection and valuation of our representative of the Construction Department, we feel that the equipment is satisfactory and represents a fair value. We are willing on account of the established business to pay more than the present valuation of the plant.

After the matter has been passed upon, I would like to have you wire me and I will have the matter handled further by Mr. Hopkins.

Yours respectfully,

(Signed) H. B. COLLINS.

P. S. I covered the commercial end fairly well but I am arranging that Mr. Wilson, our creamery manager at Hardwick, spend two or three days on the territory to get a more detailed report on the routes, volume available, competition, etc., and have wired you today asking that you arrange with the Construction Department to have one of our Pacific Coast representatives inspect and value the Ceres equipment and buildings.

Dictated by
H. B. Collins

CHICAGO, *March 2, 1917.*

Mr. W. F. JACKSON,
2d Floor.

Creamery for San Francisco.

Referring to yours of the 27th ult.

You have my O. K. to go ahead with the purchase of the creamery at Ceres California, as outlined by Mr. Collins.

Presume, if necessary, you will wire him promptly.

LOUIS F. SWIFT.

MS

MAY 29, 1917.

Messrs. Louis F. Swift,
Edward F. Swift,
L. A. Carton,
Charles H. Swift,
G. F. Swift, Jr.,
F. S. Hayward,
E. L. Ward.

—Purchase of Ceres Creamery, Ceres, Calif.—
File 18.

Purchase of the business and property of the Ceres Creamery, Ceres, California, has been completed. The purchase price exclusive of what was paid for supplies and products on hand was $19,865.75 This price included the Creamery property located and tract of land, 139 x 352', together with all the fixtures, personal property, improvements, goo will of the Creamery Company; also the 10 acre tract of land formerly used as a hog ranch.

R. C. MCMANUS
HWT

Real Estate Dept.
HWT:LJL

Section 5.—Concealing packer activity under trade and subsidiary company names.

REASONS FOR SUCH NAMES.—When the big competitor crowds the smaller, he often forces a sale of the latter's business on his own terms. In some instances he handles this business through his own concern or a branch organized under the name of his concern to take care of the additional patronage. In other instances, having acquired the cor-

porate ownership of the firm, he retains, with or without corporate dissolution, the firm name together with established brands. In either case the big competitor may, to facilitate his purposes, secure the services of his former opponent in the capacity of manager, buyer, or salesman.

If the name of the acquired company is retained without dissolution of the company, it stands as a subsidiary. If dissolution is effected or the company made inactive, the name may be retained as a trade name.

Any one of several purposes may be served by the use of the name of a company taken over. A business is less amenable to the courts and to investigation by Government agents when conducted under a trade name. A trade name may be easily attached to an individual or to a mere branch. At the same time it lends itself to an easy control of the business by the central office. Retaining the old firm name may assist in holding for the acquiring firm an established patronage. It may aid in concealing from the public at large the fact that an independent has been absorbed.

Subsidiary companies under names that do not reveal their control may be set up to push certain new brands or to take care of certain trade lines and absorb part of the profits so that they do not appear unreasonably large. There may be further reason for retaining trade names and subsidiary companies with names that hide their control, namely, to avoid giving information either for taxation, regulation, or other purposes.

PACKERS' USE OF TRADE NAMES IN THE DAIRY-PRODUCTS FIELD.[1]—The following statement by an independent western creamery company throws some light on the trade-name and brand policy pursued, sometimes jointly, by the big packers in the produce business:

> We have as competitors here in Portland, as manufacturers of butter, among the meat packers, the Union Meat Company. This concern, we understand is controlled by Swift & Company, with other meat packers holding an interest. At the same time, all the principal meat packers have branch houses in Portland and are dealing in dairy products as a side line. The Union Meat Company is known to have spent thousands of dollars in their effort to break into the butter, cheese and egg business. Originally they marketed dairy products under their firm name but seemed to make no head-way for reason that the community sentiment is decidedly against meat packers dealing in butter and cheese. They then decided to adopt a subterfuge name, called the Gold Crest Creamery and under this name and brand and backed by an advertising campaign running into many thousands of dollars they have established their trade name on butter, cheese and eggs. The advertising campaign alone would have crippled, if not broke, any ordinary concern, for reason that the margin is not in the creamery business to warrant same. Quite a few creameries in this

[1] For a detailed list of packer subsidiary, affiliated, and trade-name companies manufacturing or handling dairy products, together with similar companies in other lines, see Exhibit IV.

vicinity have ceased doing business altogether, giving way to the above aggressive campaign, and it is generally conceded that no creamery in this territory has prospered for a number of years. One claim that the management of the Union Meat Company's Creamery Department makes is that they have no expense in connection with conducting their creamery business, something that is entirely misleading, and not the fact, but if they are permitted to operate their creamery department by using earnings made elsewhere to cover losses and the expense of developments then no business can survive them. The situation summed up locally is as follows: The Union Meat Company is supposedly owned and controlled by Swift & Company with other meat packers holding interests. These same packers operate independent branches in this market. The creamery end of the Union Meat Company is operated under a third name; the object is obvious. Similar conditions exist as regards the Western Meat Company of San Francisco and the Nevada Packing Company of Reno, Nevada. Both of above companies are also supposed to be controlled by Swift & Company. The activity of the Western Meat Company in an endeavor to control the butter business in the California market is even more pronounced than what is taking place here. Meat packers seldom compete amongst themselves, but invariably meet any competition no matter how destructive. This invariably results ruinous to smaller concerns and demoralizes trade conditions generally. It can only be followed by companies having unlimited financial backing, and the obvious aim from all appearances is to get control of the markets.

Another firm in a Pacific Coast State writes the Commission as follows:

Swift & Co. and Nevada Packing Co., Reno, Nevada both controlled by Swift & Co., operate under different names in same city. Both concerns sell butter, eggs & cheese in competition against us. We consider this unfair. Have cut prices trying to eliminate us from this section.

As illustrative of how the packers are conducting certain lines of their produce business under trade names and through bogus independent companies in order to mislead the public as to the true ownership of the business, attention is again directed to the following statements of J. B. McCready, manager of the Neenah Cheese & Cold Storage Co. (subsidiary of Armour & Co.), to Harold L. Brown, manager of the produce department of Armour & Co., under date of December 4, 1917, as quoted on p. 160:

We have one factory at Mineral Point known as the Barrelltown factory where we own the machinery and hirea cheese makers. We are receiving 2¢ a pound for making cheese and we pay the cheese maker 80¢ a hundred for manufacturing and furnish all the supplies and fuel.

Now, we are advised by the Legal Department that we cannot make contracts in our own name. We are afraid if we go out there next spring and try to contract with these farmers for their milk under the name of Armour & Co., they are going to lose some of them as this question came up last spring and I quieted it by stating that Armour & Co., had nothing to do with it that the contract was between they and the Neenah Cheese & Cold Storage Co.

That even independent packing houses who buy dairy products occasionally from the packers are deceived as to the true ownership of subsidiary companies of the big packers is shown by correspond-

ence below. The Jacob Dold Packing Co., of Buffalo, N. Y., had purchased 50 boxes of cheese from Armour & Co., and when the same was delivered it came from Bernhard Schreiber, buyer for the Neenah Cheese & Cold Storage Co. (an Armour subsidiary), and Jacob Dold Packing Co. wrote for explanation.

DEC. 18, 1917.

NEENAH CHEESE & COLD STORAGE CO.,
Neenah, Wis.

GENTLEMEN: We are notified by the Chicago and North Western Railway Co's office at Sheboygan that you shipped the Jacob Dold Packing Co., At Buffalo, 50 boxes of cheese on an order of Bernhard Schreiber.

Inasmuch as the Jacob Dold Packing Co., have never ordered any cheese from Bernhard Schrieber, we wish that you would advise us upon whose original order these 50 boxes of cheese were shipped, and if you have ever received receipted freight bill covering this shipment.

Thanking you for as prompt a reply as possible, we beg to remain,

Yours very truly,

JACOB DOLD PACKING COMPANY.
Per—SHEPPERD
Prod. Dept

SJS–JG

DEC. 21, 1917.

JACOB DOLD PACKING CO.,
Buffalo, N. Y.

GENTLEMEN: Re yours of the 18th addressed to our Neenah, Wis. branch, shipment of cheese from Bernhard Schreiber, Sheboygan, Wis. to you on Aug. 17th. Will say that this order was turned over to us by Armour & Co. of which firm we are a subsidiary and was shipped by Bernhard Schreiber who is our buyer in that district.

Invoice and B/L was mailed by us direct to Armour & Co., and we are enclosing you copy of the B/L on this shipment.

Wishing you the compliments of the season, we remain,

Yours very truly,

JBMc/ NEENAH CHEESE & COLD STORAGE CO.

The following letters written by T. J. Keogh, one of the attorneys for Armour & Co., to the secretary of the company relating to the purchase of a creamery at Tempe, Ariz., and its operation under trade name, are self-explanatory. It will be noted that Mr. Keogh admits that—

the practice of trading under assumed names has been condemned on the ground that it is misleading to the public, unless the name of the true owner of the business is shown in connection therewith.

OCTOBER 18th, 1917

Mr G M WILLETTS: Answering your note of even date there is no law in Arizona that I can find relating to the use of trade name by a corporation in that state. The courts of a number of states have held that a corporation as well as an individual may adopt a trade name and all its business transactions in that name are valid.

While I can find no decision in Arizona to this effect I have no doubt that the courts of that state would follow the decisions of other states and so hold. In any event we have followed this practice of usingtrade names for a number of years in our business, as instanced in the case of the Armour Glue Works, Armour Curled Hair Works, Armour Fertilizer Works, prior to its incorporation in 1909, and a number of other instances with which you are familiar and we have never had any trouble result from it.

Of course, you understand the practice of trading under assumed names has been condemned on the ground that it is misleading to the public, unless the name of the true owner of the business is shown in connection therewith.

The Federal Trade Commission require the fertilizer companies operating the various fertilizer companies in connection with the Armour Fertilizer Works to designate in all their advertising that they were Armour owned. So far they have not made any requests of us in connection with the packing business but I mention this as showing what they have in mind and what they might ask us to do in the future, but for the present there is no objection to it so far as I can see.

T J KEOGH.

OCTOBER 24TH, 1917.

MR. H. A. WALKER: Effective October 27th, 1917, all of the property and business heretofore conducted under the name of Pacific Creamery Company at Tempe, Arizona, will be turned over to Armour & Company, a corporation of Illinois, which company will thereafter own such property and conduct the business in connection therewith under the trade name of Pacific Creamery Company.

T. J. KEOGH.

Section 6.—Methods and practices in cheese making and marketing.

CHEESE FACTORIES.—Cheese factories are owned and operated either by individual cheese makers or by cooperative farmers' organizations, the latter usually selling their output to large cheese dealers or to packers' agents. Control over storage, transportation, and marketing facilities is of prime importance, since there is little in the way of a local market for cheese, except for price-making purposes. The bulk of the cheese is currently sent from the factory to cold-storage warehouses or large consuming centers.

The farmers of Wisconsin bring their cream and milk to the cheese factory, which makes it into cheese and generally attends to selling it for the farmers, the factory usually receiving for its services about one and three-quarters cents per pound.

Cooperatively owned farmer cheese factories hire a cheese maker, but most factories are owned by the cheese makers and the farmer patrons of the district exercise over them only indirect control through their ability to turn to another factory for making and marketing their cheese.

Unless more than one cheese factory exists within easy trucking distance or unless there are creameries or condenseries near enough to compete for the milk produced, the farmer is compelled to dispose

of his milk to the local cheese factory or find other more profitable ways of utilizing his land and equipment. As a practical matter, there is little choice here, without considerable loss, if the farm is stocked up and equipped for dairying.

While the packers' influence asserts itself mainly in the marketing of cheese, yet their agents are watching with keen interest the manufacturing phase as well. Not only do they know with exactness the number of cows "tributary" to cheese factories they are dealing with, but they also report on the destinations of cheese shipments of non-packer cheese makers. They go even further with the approval of their Chicago authorities; they are willing to "absorb" any unfriendly cheese makers' interest "detrimental" to their own.

The following letter by Mr. W. H. Freund, manager of the condensery of Armour & Co. at Bloomer, Wis., to Mr. J. B. McCready, manager of the Armour-controlled Neenah Cheese & Cold Storage Co., is to the point:

BLOOMER, WIS., *Oct. 13, 1917.*

Mr. J. B. McCREADY,
Chicago, Ill.

DEAR SIR: Replying to yours under date of October 10th relative to Bolchen's shipments of cheese, I understand that he is now shipping to C. Udell, St. Louis.

I have just recently furnished Mr. White [vice-president of Armour & Co.] and Mr. Pfeiffer [manager Armour & Co.'s canned goods department] with a list of cows that are tributary to my Egan factory. If your maker could stand prices I do not see why a part skim proposition could not be worked very handy at this point. I have something like 3000 cows signed up on a list. If you are at all interested in this point I would gladly take it up with you further.

I have Mr. Winder with me at present and he is giving us good service.

Other points that I could suggest in Northern Illinois, would be Peter Danielson at McConnell, Frank Dickinson at Stockton and D. L. Mitchell at Pearl City. There are also several mighty good locations in Wisconsin where the milk could be shipped or hauled across the border and then separated and made up into part skim.

Would like to have a little more information on this Goudy Cheese. Expect this is a product consumed by Italian trade mostly.

Would be pleased to go in with you on a proposition at Egan and have Bolchen's interest absorbed and him taken out of the place and [as] he is detrimental to my own interest which you are fully aware of. Please let me hear from you on this at an early date.

Very truly yours,

(Signed) W. H. FREUND.

WHF AP

It will be noted that Mr. Freund in this letter speaks of "my Egan factory." As he is in the employ of Armour & Co., it is hardly possible to expect his factory to oppose in any way the Armour interests or to expect him to take any action toward a competitor that Armour did not approve. Bolchen is to be absorbed to permit the Armour interests to predominate at Egan.

Some Wisconsin cheese factories are owned by the packers and run by hired cheese makers, who turn over the product to the packers' agents. (See letter, p. 160.)

MARKETING OF CHEESE.—Since cheese makers seldom have sufficient capital and equipment to handle the distribution of their cheese and to carry it from the period of the greatest production until it is needed for consumption, it is generally the custom to dispose of the cheese as it is made. The greater part is sold each week to dealers.

Some of the larger cheese dealers maintain wholesale distributing houses in the large eastern cities and perform all functions of intermediaries from the time the cheese leaves the factory until it is sold to the retailer. Generally, however, the Wisconsin cheese dealer is only the first of the middle men, purchasing the cheese weekly from the factories and holding it in storage until disposed of, selling to the big packers, to wholesalers, and to jobbers throughout the country.

There has been some attempt, successful to a certain degree, to organize cooperative farmers' associations which would market their own cheese, selling direct to wholesalers or to large distributors. This attempt, however, has not yet developed to a point where it can have any appreciable effect on the cheese market throughout the country, the dealers retaining their preeminent position as receivers of the weekly cheese output.

The dealers fix the cheese prices weekly at the so-called cheese boards, of which the Plymouth board is the most important. This is done at closed meetings of the dealers, the quantities sold at these prices not being made public.

Each cheese dealer has his little following of cheese makers, who sell to him almost exclusively, except when direct sales are made on the Plymouth board.

It is claimed that the packer cheese buyers now and then attempt to get cheese makers selling to independent dealers away from the latter by means of such inducements as paying full Plymouth prices for inferior quality cheese. The independent cheese dealer with his limited outlets must have first-class cheese to satisfy his customers and can not take the inferior cheese with the good, while the packers, with a widely diversified demand, can afford to overlook the quality on some purchases.

On the other hand, the cheese makers in packer-controlled territory complain that the packers' agents shortweigh them. Very often, they say, cheese of one size is seven-eighths of a pound short and of other sizes, five-eighths of a pound.

PACKER BUYERS VERSUS INDEPENDENT CHEESE DEALERS.—The independent cheese dealers, who are accustomed to grading the cheese and who take only high-class product, find it more and more difficult to compete with the packer buyers who are able and willing to take almost anything at good prices until competition is eliminated.

This condition, besides tending to remove independents from the field, has a bad effect on the cheese makers, because, feeling sure that poor cheese will bring them as high a price as good cheese, they do not take pains to furnish cheese of superior quality.

Moreover, the cheese maker who always makes good cheese may be won over by some arrangement negotiated by the packer buyer whereby the cheese maker gets his supplies at a low figure or secures other valuable concession. At times even bonuses are paid in spite of the law.

The following instance illustrates the manner in which the packers' agents entice cheese makers to sell their output to them instead of to independent cheese dealers.

A cheese factory had been furnishing first-grade cheese to A. D. Deland & Co., Sheboygan, Wis., for a long time and the relations were mutually satisfactory. Finally Mr. Brinkman, secretary and treasurer of the company, received a letter from the cheese maker saying that he would sell his cheese thereafter to Pauly & Pauly Cheese Co., Swift & Co.'s agent. The cheese maker said he was perfectly satisfied with the treatment he had received from A. D. Deland & Co. However, Pauly & Pauly had secured for him a subagency for selling automobiles and had informed him that it would expect to get his cheese thereafter.

Section 7.—The packer and the cheese boards.

WHAT THE INDEPENDENT CHEESE DEALERS THINK OF THE CHEESE BOARDS.—It is believed in the cheese trade that the packers have their representatives on the various cheese boards of Wisconsin. It is an established fact that they have a powerful influence on the Plymouth board, which fixes the price for the entire State. Usually the packers bid up the price of cheese in the winter, when offerings are small. An independent cheese dealer pointed out to the Commission's examiner that during the winter of 1914–15 Henry Blanke, acting as Armour's agent, kept the price of cheese high all winter by bidding it up. Other dealers have corroborated this story.

Some independents maintain that the Plymouth board is "the salvation of the independents, as without it the packers could make the price of cheese what they pleased. As it is, the independents on the board can at least keep the price from being forced to an abnormally low level."

Others have expressed their belief that under the present closed board, prices are sometimes manipulated.

PACKERS' INFLUENCE OVER CHEESE-BOARD PRICES.—The packers can influence the Plymouth board prices in various ways. They agree among themselves to buy certain quantities of cheese and advise their buyers as to the price limits they should observe. Any deviation from the dictated prices on the part of the buyers has to be explained to the satisfaction of the big packers. Particular attention is called to the letter of July 19, 1917, by the Neenah Cheese & Cold Storage Co. to F. W. Brehm & Co.,[1] Sheboygan, Wis., complaining that the buyer, McCormick, was offering more than the market price for cheese and forcing its own buyer to pay 20 cents per pound when he was instructed to pay only 19 cents.

F. W. Brehm's reply dated July 20, 1917, is rather significant. He maintains that "it does not make any difference to us how high they run the Highland Board up in price, as we are not getting any cheese based on it."

In another letter of the Neenah Cheese & Cold Storage Co., dated October 9, 1917, and addressed to Hodgson Bros. & Rowson, Montreal, Canada, this Armour-controlled concern explains briefly how the Plymouth board quotations are made:

> We put 800 boxes Twin cheese on under the factory men's name and in this way held the Twin market to where we got it. However, we would not be afraid to bet that next week they will raise the market on us again unless we do exactly what we did this week.

In this connection it is interesting to note that some of the so-called independents actually look to the packer's agents for breaking the cheese market. In his letter of October 22, 1917, John Kirkpatrick, of Richland Center, Wis., wrote to Mr. J. B. McCready, of the Neenah Cheese & Cold Storage Co., as follows:

> I hear that some of you will try and bust the Plymouth market today, and hope you will be successful as it will start some export business, if you get prices down low enough and it will be a lesson for outsiders to quit speculating in stuff that they do not usually handle and in this way will put the market on a reasonable basis.

To this the Neenah Cheese & Cold Storage Co. replied the next day, in part, as follows:

> We tried to make a reasonable market yesterday at Plymouth and would have done so if it had not been for Fred Dow's man pushing the market—we presume on orders for Cudahy Packing Co. There was a while when it looked as tho Twins were going to stand at 20¢. Daisies 22¢ and longhorns @ 22½¢—this is exactly where they should have stood if they wanted to be right. I am in hopes that we will soon get the market down where it belongs.

[1] This letter and the letters from which the extracts following are taken are given in full in the Report on the Meat-Packing Industry, Pt. II, pp. 142–144.

In order that the demand may not show its full force on the board and thus raise the market price to be paid the producers, the dealers ask and receive accommodation in the way of supply from each other. The following is a letter from F. W. Brehm & Co., of Sheboygan, Wis.:

JUNE 15, 1916.

Attention of I. F. Laing.

NEENAH CHEESE & COLD STORAGE CO.,
Chicago, Ill.

GENTLEMEN: Owing to the few Young Americas that are offered on the Sheboygan and Plymouth boards this summer, we are having difficulty in getting enough to fill our orders as we have no factories coming in. We were wondering if you could not help us out to the extent of say 50 boxes of Young Americas per week.

The writer spoke to Mr. Blanke at the Board Tuesday and he advised us to take the matter up with you.

We will be glad to pay ¼¢ over the Plymouth Board for these Young Americas F. O. B. Plymouth.

We do not like to bid on the few that are on the Board at Plymouth for fear of disturbing things. Trust you can see your way clear to help us out.

Yours very truly,

F. W. BREHM & Co.

FWB/CR

To this, reply as follows was sent by the Neenah Cheese & Cold Storage Co.:

JUNE 17, 1916.

F. W. BREHM & Co.,
Sheboygan, Wis.

GENTLEMEN: Your favor received and noted. We have been short on Young Americas ourselves right along as it seems very few of the factories are making them.

However, if I can arrange to let you have fifty next week will do so or will try and let you have 50 Young Americas in exchange for 50 Longhorns as I hear there are more Longhorns at Sheboygan than there are Young Americas.

Yours respectfully

NEENAH CHEESE & COLD STORAGE CO.

I. F. L.

After having gained control over the Plymouth quotation, the packers seem to be averse to buying below the Plymouth quotations or paying premiums over them, as disclosed by the C. E. Blodgett Cheese, Butter & Egg Co.'s letter of November 7, 1916, to Mr. I. F. Laing, of the Neenah Cheese & Cold Storage Co. Such a policy seems to be agreed upon among these two Armour subsidiaries and the Morris & Co. representative, C. A. Straubel, and the Swift & Co. buyer, Pauly & Pauly.[1] Yet this opposition on their part does not deter them from making agreements with cheese factories to pay them a premium over the Plymouth market in case they want to get a factory's output away from independents.

[1] Report of the Federal Trade Commission on the Meat-Packing Industry, Pt. II, p. 137.

It is customary for the packers to put the blame for the lowering of prices to the cheese factory on their small competitors.

Correspondence between the Neenah people and the Armour & Co. offices in Chicago unmistakably points to the fact that these attempts at price depressions on the Plymouth market have been dictated by the Chicago office of Armour & Co. and had to be executed even against the better judgment of the local officers.

It would be well to recall in this connection the opening sentence of the C. E. Blodgett Cheese, Butter & Egg Co.'s letter of July 8, 1916, to Mr. J. W. Brown of Armour & Co., Chicago, Ill.

> Referring to your wire of even date in regard to getting the market down at Plymouth, I doubt very much if this can be done.[1]

The following extract from a letter of the Neenah Cheese & Cold Storage Co. to its agent, Bernhard Schreiber, Sheboygan, Wis., dated August 22, 1917, shows that the packers themselves are anxious at times to work for lower markets with respect to the producer:

> We don't propose to be growled at all the time by our competitors and we want you to strictly understand that unless you can work as we request you, a change will have to be made. We are working for lower markets—we are entitled to them, but heaven knows we will never get them as long as we tread on the toes of our competitors.[2]

In another letter, Mr. J. B. McCready, manager of the Neenah Cheese & Cold Storage Co., wrote on January 8, 1917 to C. E. Blodgett, another Armour man, as follows:

> I wrote a number of dealers Saturday in regard to trying to get the market down and am satisfied that these fellows can use more influence than Davis can. In talking with the dealers the last time I was there, they advised me that if our warehouse was to close and the cheese were to revert back to their original channels (that is among the small cheese dealers) it might help conditions; but Davis was going to get them all (as he was trying to do so) things would be worse than they ever were.[3]

PACKERS' CHEESE PRICES NOT ALWAYS BOARD PRICES.—It is undoubtedly true that the packers do not always pay board prices to the factory. When the packer has no effective competition from independent buyers for a factory's cheese, the packer cheese dealer may set the price to the factory. The following paragraph taken from a circular letter, dated November 24, 1917, by J. B. McCready to the branches of the Neenah Cheese & Cold Storage Co. illustrates the point.[4]

> You can put the proposition up to the cheese makers in this way—that conditions are bad and if we take the cheese on we run a big chance of taking a loss

[1] Letter given in full in the Federal Trade Commission Report on the Meat-Packing Industry, Pt. II, pp. 135–136.

[2] Letter given in full in Federal Trade Commission Report on the Meat-Packing Industry, Pt. II, pp. 140–141.

[3] Quoted from the Report of the Federal Trade Commission on the Meat-Packing Industry, Pt. II, pp. 138–139.

[4] Letter given in full on p. 161.

more or less. Tell them it is customary with some of these cheese makers to come to us when they need help and as soon as somebody comes along and offers a premium they will switch over, so if you take them on this winter, take them on with the understanding that we are to have their cheese for the summer months next year. In fact, would get them to sign an agreement to this effect. There may be some of them that you could convince that if conditions are bad enough so that really you should not buy them on the basis of Plymouth but at the very best price we can pay them.

After all it matters little what the weekly quotation for cheese is when it comes to packer interbranch sales. The packer-controlled cheese company is willing to make "a special price" to the packer's department, as the following brief correspondence between A. J. Little, manager of Armour & Co.'s wholesale market, Chicago, Ill., and J. B. McCready, of the Neenah Cheese & Cold Storage Co., shows:

CHICAGO, ILL.
Dec. 4, 1917.

NEENAH CHEESE & COLD STORAGE CO.,
125 West South Water Street,
Chicago, Ill.

Att. Mr. McGrevy [*McCready*]

GENTLEMEN: Referring to the attached invoice: it is our understanding that the price of the cheese should be twenty-three cents per pound.

Will you kindly check over your records and advise your decision in the matter.

Your prompt attention will be very much appreciated.

Yours truly,

ARMOUR & COMPANY,
(Signed) A. J. LITTLE.

To this J. B. Mc [McCready] replied as follows:

DEC. 6, 1917

ARMOUR & COMPANY,
WHOLESALE MARKET,
Chicago, Ill.

Attention Mr. A. J. Little.

GENTLEMEN: Re yours of the 4th, we are enclosing you corrected invoices on our sale of Nov. 7th. The price charged you, 23⅜¢ is the price we were charging that week, but I remember distinctly having made you a special price on these 25 boxes and our records show that this is correct.

Yours very truly,

NEENAH CHEESE & COLD STORAGE COMPANY
JBMc/

TYING CHEESE FACTORIES TO ONE CHEESE DISTRIBUTOR ON THE BOARD.—There is enough evidence to justify the conclusion that in cheese marketing the packers try to limit each cheese factory to one dealer. This is achieved through a general understanding among packer dealers not to interfere with factories delivering to other packer dealers by offering more than the cheese-board price. When some independent dealer or packer subsidiary breaks the established custom and takes the output of some factory which "belongs" to an-

other dealer, or bids in some lot of cheese on the board which customarily is taken by another, there is occasion for correspondence.

The letters given below show the existence of the rule through the criticism of dealers violating it.

The following letter, complaining that the Blodgett company was taking part of the cheese from a factory which had been delivering to the Neenah Co., was written by the manager of the Neenah branch to the head office in Chicago:

NEENAH CHEESE & COLD STORAGE CO.
NEENAH, WIS.

MAR. 20, 1917.

NEENAH CHEESE & COLD STORAGE CO.,
Chicago, Ill.

GENTLEMEN: I just got in from Weyauwega and found that the Blodgett Cheese Co., has been getting part of the cheese from our Wyawega factory. Now if Mr. Blodgett is not satisfied to stay in his own territory don't you think it would be all right for us to go into his? About two years ago a factory from Marshfield shipped us his cheese and when Blodgett found it out he had a fit about it. We did not know that the factory was going to send us his cheese until they came in and we immediately called Blodgett up and told him about it but this is not the case with him. He has been down to Weyauwega and by doing so has got two shipments but I don't think he will get any more from what they told me today. He is getting as bad as Straubel [a Morris man]. Wants all the cheese in the country. We did not say anything to Blodgett about this and won't if you think best not to.

Find enclosed letter from Mineral Point which belongs to you.

Yours truly,

NEENAH CHEESE & COLD STORAGE CO.
per S. D. CANNON.

SDC/

Upon receipt of the above letter, Mr. J. B. McCready, manager of Neenah Cheese & Cold Storage Co., Chicago, Ill., wrote to the Neenah branch and to Mr. C. E. Blodgett, manager of C. E. Blodgett, Cheese, Butter & Egg Co., the following letters:

MARCH 21, 1917.

NEENAH CHEESE & COLD STORAGE CO.,
Neenah, Wis.

GENTLEMEN: Answering yours of the 20th will say that I have just taken it up with Mr. Blodgett. Think that after he receives our letter he will find his way clear to keep out of the way of our factories.

Yours very truly,

JBMc/ NEENAH CHEESE & COLD STORAGE COMPANY.

MARCH 21, 1917.

MR. C. E. BLODGETT,
Marshfield, Wis.

MY DEAR SIR: I am in receipt of a letter from our Neenah Wis. branch in which they state that they find you are taking part of the cheese from a factory at Weyauwega that has been shipping us right along.

I sincerely hope that you are not going to work on any of our factories for the reason that we have given up more now than we can ever hope to get back this year.

I have heard nothing whatever from Blanke and believe he will have to get a rap or two before he will stand without hitching.

Cannon tells me that a year or two ago one of your factories in Marshfield shipped some cheese and that you were very much put out about it. He assures me that he was not aware that this factory was going to ship the cheese at all until the cheese came in.

Trusting that there will be no interference with one another's factories, we remain,

Yours respectfully,

JBMc/ NEENAH CHEESE & COLD STORAGE CO.

That the understanding to leave the factories of one another alone is broken occasionally is indicated by the letters below, which disclose other methods than that of openly taking the output. There are methods by which the Neenah people "will not be known in the deal at all."

Mr. J. B. Linzmeyer, referred to below, is secretary of the Wisconsin Cheese Dealers' Protective Association. In an interview with a representative of the Federal Trade Commission he asserted that of the two matters on which members of his association concentrate their efforts one was to prevent the packers from getting control over all the cheese factories and thus wiping out the independent dealers.

The letters given below seem to indicate that his efforts were not wholly in this direction. He appears to be helping Mr. S. D. Cannon, manager of the Armour-controlled Neenah Cheese & Cold Storage Co., to secure the output of more cheese factories.

GREEN BAY, WIS.
Mar. 23, 1917.

Mr. S. D. CANNON:

FRIEND SAM: I am going to Fond du Lac the first of next week and will stop off at Neenah to see you about buying some cheese. I know of several factories that I could get on the Green Bay Road if you could use them that way.

Expect to be at Neenah Monday or Tuesday morning.

Yours truly,

J. B. LINZMEYER
625 So. Jackson St.

After Mr. Linzmeyer had called, Mr. Cannon wrote to the Chicago office of the Neenah company as follows:

NEENAH, WIS. *March 27, 1917.*

NEENAH CHEESE & COLD STORAGE CO.,
Chicago, Ill.

GENTLEMEN: Mr. Joe Linzmeyer was in this afternoon and as we did not feel like taking this all on our own shoulders thought best if you were going to be at Plymouth next Monday that Mr. Linzmeyer and the writer would

come over and we could talk this matter over together. Please let us know if this will be satisfactory.

From what he told us today we think he will be able to get 8 or 10 factories and from the way was put it up to him we will not be known in the deal at all, we to pay him ½¢ brokerage.

Think it is worth looking after. He seemed to think that he would not want to put it off any longer than next Monday as they all have their annual meetings from the 10th to the 15th of April and he would like to see them before that.

Yours truly,

NEENAH CHEESE & COLD STORAGE CO.
S. D. CANNON.

The following letter was written by the Sheboygan County Cheese Co. to P. J. Schaefer Co., who forwarded it to Mr. C. E. Blodgett, the Armour man. Mr. Blodgett sent it to Mr. J. B. McCready, of the Neenah Cheese & Cold Storage Co., with the notation at the bottom.

SHEBOYGAN COUNTY CHEESE COMPANY
SHEBOYGAN, WIS.

Oct. 2, 1917.

P. J. SCHAEFER CO.,
Marshfield, Wis.

GENTLEMEN: We sold yesterday on the Plymouth Board for the account of Mr. Blodgett

350 Daisies at 26¢ to B. W. Rowe
150 " 26¢ " A. D. Deland Co.

and for your account

202 Daisies at 26¢ to Bamford
292 " 26¢ " Wheeler
75 Twins 24½¢ " Conover

and we requested you over the phone to ship 50 Longhorns at 27¢ to Mr. Erick Ericksen.

In addition to the above offering we had 100 Young Americas and 100 Longhorns from Mr. Pauly and 400 colored Twins from Mr. McCready.

It was evident Mr. Davis wanted the market held fully as high as it was last week, as, after the writer made a remark at Sheboygan that if Longhorns went higher than 26½¢ they could have our two lots. Mr. Davis then immediately commenced to bid on our two lots that we have been in the habit of buying and the writer then told Mr. Davis that we had not made the remark for his benefit but that we had rather done so, to stop Wheeler and Rowe from bidding.

At Plymouth, the Longhorns opened at 27¢ and stayed right there, but the Daisies at Plymouth were opened at 25¢ and it was a little slow work to get them up to 26¢.

On the whole, the market on all styles seems to be rather weak.

We had a wire this morning from Mr. Edward Thomsen New York offering us a car of Twins at 24¾¢, stored at Sheboygan.

After we had telephoned you yesterday Mr. Ericksen asked us to ship the 50 Longhorns that he bought on the Board to Mr. Schreiber. It seems strange to us that Mr. Schreiber should ask Mr. Ericksen to buy Longhorns for him in view of the fact that he is representing Armour & Co. It would seem to us

that the Armour people would compel him to stay off the market, as he is getting enough Longhorns and it is these little underhanded tricks that help to advance prices. If you happen to have the right opportunity, you might put this up to Mr. Blodgett.

Respectfully yours,

SHEBOYGAN COUNTY CHEESE CO.

NOTATION: Jack: this is copy of letter I got from Schaefer to-day.

C. E. B.

The above letter shows that some so-called independents are devoted to the packers' interests on occasion and are communicating to the agents of the latter all inside information on the Plymouth cheese board: Who sold to whom, at whose orders and at what prices, and what quantities; what other bids and offerings were made and for what purpose; what cheese dealers attempted to sell to Armour & Co. through others than the recognized Armour agents. This particular independent is appealing to the Armour agents for help to keep the cheese prices down.

Upon the receipt of the above letter Mr. McCready wrote to Mr. Schreiber, the Armour cheese buyer, the following letter:

OCTOBER 5, 1917.

BERNHARD SCHREIBER,

Sheboygan, Wis.

MY DEAR SIR: We have a complaint today from the P. J. Schaefer Co. in which they state that 50 boxes of Longhorns they offered on the board Monday was bought by Mr. Erickson, and requested that they be shipped to you.

Now, this looks like roundabout business to us. We are doing everything in our power to get the market where it belongs—we don't want it unreasonable, but we do want it where it should be. We, ourselves, sold 400 boxes colored Twins on the Plymouth Board last week and it would not matter if we sold 4,000 as long as Longhorns were up at 27¢ Twin cheese were bound to sell where they did, altho they are not worth over 23¢ a pound. We are handling more Twin cheese than any other style and as a consequence, are losing more money than the average dealer, for the simple reason that Twins are entirely too high.

Every time that you or Mr. Ericksen made a bid on the Dairy Board you are helping to raise the market, because the higher they put Longhorns, the higher they are going to put Twins. We don't want you to buy a box of cheese on the Plymouth Dairy Board and would very much prefer if you would not buy on the Sheboygan Board—either yourself, or thru Mr. Ericksen. You can see how much sense there is in us paying you ⅛¢ for buying cheese from Marshfield that we could buy ourselves at flat market if we wanted to. Now we want you to work with us and not against us. Everytime you bid on the Board or have anyone else bid on the Board you are working against us and this does not look very much like co-operation. Just think this over now and see if we are not right. You Can't very well expect dealers around Plymouth and Sheboygan that are only getting a few Longhorns, to sit idly by and watch you bid on the Board without helping to try and make you pay for them—especially when they know you are getting at least two cars of Longhorns a week. Kindly bear in mind that any time we want you to buy on the Board we will tell you.

The cheese market is entirely too high. We have not made a penny on any of your Longhorns in three weeks. In fact, by the time you figure interest on our money that we have to tie up by paying you promptly, waiting for the other fellow to pay his bills, we are really money out. Now I want you to take this in the spirit it is given—in all fairness. You are making a nice thing on what cheese you have coming in—you have no risk; no matter where the market goes, your stuff is cleaned up, so kindly work with us.

Yours very truly,

NEENAH CHEESE & COLD STORAGE CO.

JBMc/ P. S.—On the order we sent you yesterday—the flats from Neenah and 200 Longhorns—in case you are short 20,000# add a few more Longhorns.

Section 8.—Limiting the market and fixing prices to the producer.

CONQUEST OF THE MARKET.—The claim is made by the packers that they are able to pay higher prices to the producer and to sell at lower prices to the retailer than can their competitors because of their more efficient and direct handling. This contention, however, is not borne out by the books. The books do show in the case of Armour & Co., taking at its face its own profit and loss showing on its produce business as a whole, that it is able to sustain continuously heavy losses over a period of years in the expectation of recouping when the market is once secured and that it has done this in recent years despite individual cases of subsidiary produce companies operating at considerable profit.

Out of the six fiscal years ending October 27, 1917, two, according to the books, showed a net loss for Armour & Co. on butter, six on eggs, five on poultry, and one on cheese (see Table 40 below). For the year 1912 there was a net gain on the four items of $48,135.22; for 1913, a net loss of $84,707.41; for 1914, a net loss of $337,601.56; for 1915, a net loss of $308,905.15; for 1916, a net gain of $541,845.76; and for 1917, a net gain of $113,232.14. Even with cheese, the most profitable item, included, there was a net loss for the entire period. If cheese is excluded, only in one year, 1916, was there a net gain on the three remaining items taken together, and the net loss for the period was over $800,000. For the six years as a whole there was a net gain on butter of $166,033.99, a net loss on eggs of $404,161.79, and a net loss on poultry of $594,231.28. No produce firm dependent for its profits on these three products alone, as many of Armour's competitors are, could survive such continuous and heavy losses. Either the books do not show the true profit or the losses are temporarily carried by other commodities.

TABLE 40.—*Profit and loss on produce, Armour & Co., 1912–1917.*

[Unaudited and unverified figures from the company's books.]

	1912	1913	1914	1915	1916	1917	Total net profit or loss for the six years.
Butter	$3,422.80	$56,295.77	[1] $30,797.75	[1] $117,843.91	$224,022.39	$30,934.69	$166,033 99
Eggs	[1] 5,317.20	[1] 24,776.11	[1] 164,457.56	[1] 60,442.25	[1] 17,562.60	[1] 131,606.07	[1] 404,161.79
Poultry	[1] 34,480.97	[1] 50,494.99	[1] 189,905.62	[1] 181,660.61	8,090.05	[1] 145,779.14	[1] 594,231.28
Cheese	84,510.59	[1] 65,732.07	47,559.37	51,041.62	327,295.92	359,682.66	804,358.09
Total net profit or loss for the period	48,135.22	[1] 84,707.40	[1] 337,601.56	[1] 308,905.15	541,845.76	113,232.14	[1] 28,000.99

[1] Loss.

The Commission is not in a position to certify to the correctness of these profit and loss statements as furnished by Armour & Co., but if they truly set forth the financial results of its operations in produce they indicate that these years were dedicated to a conquest of this field and not to the making of a profit; that the company was overbidding its competitors in the purchase of milk, cream, and poultry products, and underselling its competitors on poultry and dairy products until both buying and selling markets should be won. If margins were not thus unduly narrow, what else do these losses (still taking the profit and loss statements as furnished by Armour & Co. at their face) show but grave inefficiency? The facts show that the tendency has been ruinously to compete with commission men and country shippers for the producer's output, thereby eliminating these middlemen. Such eliminations would appear to make for directness and lower handling expenses, but the process is a costly one, and once accomplished prices are lowered to the producer with no benefit to consumer from lower buying prices or reduced handling expense, if there be such.

With fewer independent commission men and country shippers, the competition of the wholesale receiver and distributor in consuming centers who must rely on these independents for their supplies is more easily stifled and the market at both ends of the distributive process comes under control.

Chicago wholesale produce houses report that competition is being eliminated by the big packer interests by securing their supplies directly from the producers at prices unreasonably low and by selling goods to the retail trade at prices out of proportion with their buying prices.

A wholesale produce house in Philadelphia, Pa., stated that its traveling representatives have been frequently told that the main reason why shippers were not giving them a greater amount of business was on account of Swift & Co.'s prices for live poultry.

This incident was mentioned as typical: After having sold Swift & Co. some 20 cars of turkeys one season recently an official of the Anderson Produce Co. told a representative of the Philadelphia house that Swift or any one else could have bought every turkey in the territory for 2 cents per pound less had it not been for the prices put out originally by Swift. The Anderson Produce Co. became a Swift concern on or before February 7, 1918, having been bought for $17,952.64.

Complaints against the big packers doing produce business on unduly low margins where competition still prevails are voiced by several commission men. A southwestern wholesale commission firm wrote the Federal Trade Commission as follows:

> We used to enjoy a great deal of trade in Butter, Cheese and Eggs years ago, but since the Packing Houses are handling these commodities we sell very little for the reason that there is hardly any margin left, and the writer is of the opinion that the above mentioned items as well as a great many items in the Wholesale Grocery line are handled by the Packing Houses for the purpose to increase their volume of gross sales to enable them to show a smaller percentage of net profits, calculated on the volume of gross sales.

SHIFTING MARKETS AND DIVERTING SUPPLIES FROM INDEPENDENT PRODUCE DEALERS.—To bring about distribution on a national scale it is the policy of the packers to keep apart the local producer and the local consumer. This, of course, benefits the large organization that can draw on supplies in one part of the country and ship them to another.

This policy in some cases may be in accord with industrial development. For instance, New York State has ceased to be the large butter producer it once was and has become dependent almost exclusively on western butter, supplied largely by the packers. Yet this condition can not be attributed solely to the packers, but in large measure is due to the fact that in the State of New York milk for the city trade sells for more than it is worth for making either cheese, butter, or condensed milk.

Aside from this, the dependence of the producer and the consumer on the packer as a distributor is manifesting itself in different ways. For instance, in Wichita, Kans., it was found that Swift & Co. would not sell to the local dealers any butter, though it had large quantities in store, and there was urgent local demand. Its butter was being shipped out or held for shipment. Similar policy was being pursued by Swift & Co. elsewhere in Kansas.

The Commission's examiners have found that in some eastern markets one or the other packer predominates, and the jobber or retailer has little if any choice as to his source of supply. Morris & Co., for instance, appears to be a large factor in the Charleston, S. C., butter business and local dealers find themselves compelled to buy from it or contract their business.

Wholesale dealers in dairy products in eastern cities have complained to the Commission that their business has been greatly reduced because of their inability to obtain from the producing territories the products in quantities desired, as the packer competitors outbid them for the commodities. Such competition works to the ultimate benefit of neither producer nor consumer.

An examiner of the Commission interviewed a merchant in a Missouri town, who for years has been engaged in wholesaling eggs, butter, and live poultry, and reported the following:

That Swift & Co. had repeatedly attempted to put his firm out of business. That Swift & Co.'s local manager made a practice of calling his customers on the phone, and after finding that they had sold poultry or eggs to this firm, offered them a price much higher than the market price in order to make them dissatisfied.

Swift & Co. often pay at ———, Mo., a higher price for live poultry than dressed poultry is bringing on the New York Market.

The Commission has testimony from dealers in the New York market to the effect that "whatever line the packers go into, nobody can compete with them."

Another merchant in Wisconsin has stated that "wherever the packers went after anything they rode rough shod over everything and got what they wanted."

With the growth of the packers' produce business independent produce dealers have been ousted from many localities. During the past few years all but one of a dozen independent poultry, butter, and egg dealers at Hutchinson, Kans., have discontinued their business; Swift & Co., having established a large poultry-killing plant and feeding station, together with cold-storage warehouse facilities, at Hutchinson, these were unable to withstand the competition.

An eastern concern reported that the firm came into competition with the Chicago packers and goods were sometimes bought from and sold to their branch houses. Those relations were said to have been satisfactory, but it was felt that the growth of the packers constitutes a menace. Due to competition with packer methods, the report went on, the resident salesman in an outside town in which heavy sales had been made would have to be withdrawn and the business there given up.

Another produce dealer in a large eastern city stated that—

The packers are in some districts paying more for produce than the independent believes is necessary and the packers' branch house will receive the goods and sell them below the prices which the independent can make, and this in spite of better business methods and men with the independents.

This is believed to be due in part to certain advantages held by the packers as pointed out in an earlier chapter[1] and in part to their

[1] See Chap. II.

ability to sell certain goods at a loss, charging it up to the profit on items in which there is no longer the same competition.

A Charleston, S. C., dealer told the Commission's examiner that since the big packers established branches in Charleston his business had been materially reduced: Canned vegetables and fruits, 33⅓ per cent; canned meats of all kinds, 50 per cent; breakfast foods of all kinds, 30 per cent; rice, 33⅓ per cent; cheese, 75 per cent; butter, 100 per cent.

In the Chicago market a large percentage of the poultry business is handled at present by the five big packers. Each packer has his store on South Water Street, and certain other firms there seem to be controlled by them.

If the independent produce dealer handles a well-established brand of an independent producer the packers try to secure the distribution of such desirable brand and so gradually displace the independent distributor. Quite recently Morris & Co.'s branch house in Washington, D. C., took over the distribution of the Fox River Butter Co.'s butter from R. L. C. Cochrane & Sons, former local agents of the Fox River Butter Co.

On the other hand, the packers are careful not to compete with each other or with their bogus independents in the produce business. Hotel men in Jacksonville, Fla., have said:

> There has been no competition on the part of the packers,—absolutely none—against Smith, Richardson & Conroy [an Armour subsidiary hotel supply company]. Armour and Swift, have never attempted to compete with them; Morris & Co. did for a little while, but have not recently. When Wilson & Co. came here they made an energetic attempt to secure our business, but it did not last long, as their stuff was not up to quality. * * * The opinion prevails among hotel men generally here that the large packers will not cater to our trade on account of the big trade which they receive from Smith, Richardson & Conroy.

Another hotel man corroborated this testimony by saying:

> We buy very little from Armour & Co. and they seem to be out of the market, as their men do not call on us at all. Swift, Morris, and Wilson men do call occasionally, but none of the larger packers appear to cater to the hotel trade here in Jacksonville; I very seldom see any of them—Mr. Livesey, Manager of Armour & Co., was formerly of Chattanooga, my home town, and even he does not seem to care much to get our business. It looks as if the large packers had left the field entirely to Smith, Richardson and Conroy.

SECURING THE OUTPUT OF LOCAL INDEPENDENT CREAMERIES AT FIXED PRICES.—Along with the elimination of many independent butter dealers the packers are securing the finished product of local creameries at stipulated prices and marketing it under their own brands at their own prices.

The product is acquired either by a written contract or through a verbal understanding. The marketing of the local creamery's butter

may apply to a definite quantity or to a so-called surplus which presumably can not be disposed of locally. The prices at which the creamery turns over its product to the packers are fixed on the basis of some given market, such as Chicago, Elgin, or New York.

The Bell-Jones Co., Davenport, Iowa, a typical independent as respects the ownership of its plant, marketed in 1917 over 42 per cent of its entire packing-stock butter and 43.6 per cent of its creamery butter through Armour & Co. C. F. Bishop, Inc., Quincy, Ill., sold in 1917 its entire butter output to Swift & Co.

The Concordia Creamery Co., Concordia, Kans., sold in 1917, 42.99 per cent of its entire butter output of 2,075,054 pounds to Wilson & Co., Inc., under an arrangement whereby the latter took all of the Concordia's surplus butter. During the full grass period from May 15 to July 1 settlement was made at top quotations for extras, Chicago market, date delivered, f. o. b. Chicago. From July 1 to November 1, one-fourth of a cent below top Chicago market for extras, date delivered, Chicago, f. o. b. there. For the balance of the year each shipment was sold according to markets at that time.

The Freeport Dairy and Produce Co., Freeport, Ill., with annual sales of butter for 1917 of 1,108,000 pounds, had a similar contract for its surplus butter with Wilson for 1918. It estimated its probable sales to Wilson & Co., Inc., for that year at 600,000 pounds.

The Hanford Produce Co., Sioux City, Iowa, sold 57 per cent of its entire 1917 butter output of 9,964,529 pounds to Armour & Co.

The Farmers' Co-operative Creamery, Milaca, Minn., sold in 1917 to Swift & Co. 644,616 pounds, or 79 per cent of its entire output of 815,265 pounds of butter.

Morris & Co. had a contract for marketing over 1,000,000 pounds of the American Butter Co.'s butter output for 1918, as shown by the following letter of Morris & Co. dated February 20, 1918:

MORRIS & COMPANY

Packers USA PROVISIONERS

PRODUCE DEPARTMENT
Chicago, Feb. 20, 1918.

AMERICAN BUTTER COMPANY,
Kansas City, Mo.

Attention Mr. Carpenter.

DEAR SIR: Confirming our conversation today, we understand you are to ship us for a term of one year commencing March 1st, 1918, your surplus make of your best grade of Creamery Butter; this surplus being estimated at about one million pounds and will probably move in quantities approximately in line with the figures shown below:

Month	Estimate	Basis
March, 1918	70,000#	1¼¢
April, 1918	75,000#	1¼¢
May, 1918	100,000#	¾¢
June, 1918	180 000#	¾¢
July, 1918	150,000#	¾¢
August, 1918	125,000#	¾¢
September, 1918	100,000#	¾¢
October, 1918	100,000#	1¼¢
November, 1918	60,000#	1¼¢
December, 1918	50,000#	1¼¢
January, 1918 [1919]	40,000#	1¼¢
February, 1918 [1919]	40,000#	1¼¢
	1,090,000#	

Same is to be packed in standard 60/63# White Ash Butter Tubs, usual style of packing and to be priced to us on basis of the Chicago market for Extras as follows:

During the months of March and April 1918 price to be 1¼¢ under the top quotation Chicago market for Extras.

During the months of May, June, July, August and September 1918, price to be ¾¢ under the top quotation Chicago market for Extras.

During the months of October, November, December 1918 and January, February 1919, price to be 1¼¢ under the top quotation Chicago market, for Extras.

all f. o. b. cars Kansas City, Mo. The quotation two days after shipment to apply, that is a delivery to us at Kansas City or a shipment for us from Kansas City by you on March 1st would be priced on quotation Monday the 4th, Sunday being a holiday; and in any event in case of a holiday, the quotation to apply will be the quotation following the holiday.

It is understood that we are to have your best quality Creamery Butter and equal to the best grade of goods you are putting out to your local trade, and that we are to have your surplus over and above your present local trade requirements.

Kindly acknowledge receipt of this letter.

Yours truly,

MORRIS & COMPANY.
MORRIS

United States Food Administration License Number G-08906.
W. F.

Likewise, the F. J. Mumm Co., St. Paul, Minn., has a contract with Morris & Co. to furnish its entire butter output in tubs at three-fourths of a cent per pound less than Chicago top price from August 15 to May 15, and at Chicago top price from May 15 to August 15. This independent creamery is one of the largest receivers of cream from Minnesota and Dakota shippers.

While the above creameries have stuck almost exclusively to one or another of the Big Five as their chief marketing agent, there are others which have split their sales among two or more packers, giving to one of them, however, much the greater part.

Thus the Duluth Creamery & Produce Co., Duluth, Minn., sold in 1917, 37.28 per cent of its entire butter output to Armour & Co., while Wilson, Swift, and Cudahy took each less than 1 per cent.

The Wadley Co., Indianapolis, Ind., sold in 1917 to Morris & Co. 24.62 per cent of its butter, while Armour and Swift took each less than one-half of 1 per cent.

Likewise, the Rhinelander Creamery & Produce Co., Rhinelander, Wis., sold H. L. Handy Co., a Swift & Co. subsidiary, 25 per cent and to Cudahy only 1½ per cent of its butter output of 1917.

Jos. T. Milnarik, of Chicago, a wholesale dealer, broker, and commission merchant in butter, cheese, eggs, and poultry, made in 1917, 46.7 per cent of his butter sales through Morris & Co., 2.67 per cent through Wilson & Co., 2 per cent through Armour & Co., and 1.2 per cent through Swift & Co., or altogether 52.6 per cent of its entire butter sales through four of the big packers. From January to July, 1918, he sold 40.95 per cent of his butter through Morris & Co.

G. W. Bull & Co., of Chicago, broker and wholesale dealer in butter, cheese, and eggs, sold without any agreements or contracts the following quantities of butter to the four packers in 1917: Morris & Co., 970,319 pounds; Armour & Co., 145,968 pounds; Swift & Co., 84,265 pounds; Wilson & Co., Inc., 146,575 pounds. These sales constituted about one-sixth of the entire butter sales of the company. During the first six months of 1918 the five packers had purchased from it altogether 836,000 pounds of butter. This butter is obtained from creameries in Nebraska, Minnesota, Illinois, Wisconsin, Indiana, Michigan, Kansas, South Dakota, Missouri, Colorado, and North Dakota.

Obviously the big organized purchasing power of the packers is able to secure the output of many small butter producers with whom they have no agreements and no connections whatever.

ABSENCE OF PACKER COMPETITION THROUGH UNDERSTANDINGS.—As pointed out elsewhere[1] in this chapter, the packers have succeeded in establishing friendly relations among themselves and their so-called competitors in cheese marketing. These competitors do not desire "to step on each other's toes." If occasionally by a mistake some cheese from a factory "belonging" to one dealer is billed to another, the error is corrected and the guilty party is reprimanded.

In this connection it is worth recalling the correspondence between John Kirkpatrick, of Richland Center, Wis., and the Neenah Cheese & Cold Storage Co. with regard to the Melanthon Creek Factory's cheese. In his letter of October 22, 1917, Mr. Kirkpatrick wrote, in part, as follows:[2]

> I also wish to repeat what I said to you, that I never expect to take any cheese out of your warehouse, as there is plenty of cheese for everybody, and there is no need of our tramping on each others toes. Moreover, I do want to keep friendly with all of my competitors.

[1] See section 4.

[2] Quoted in full in Report of the Federal Trade Commission on the Meat-Packing Industry, Pt. II, pp. 143–144.

To this the Neenah Cheese & Cold Storage Co. replied the following day, saying, among other things, the following:[1]

> We have given Nisbet instructions that we don't want him to take any cheese from your house and we don't expect you to take any from him. We want to get along as well as we can with all of our competitors but there are some of them the Lord himself could not get along with.

PRICE MANIPULATION.—Price fixing through cheese boards and butter price stipulation through purchase agreements are not the only manipulations of produce prices. Local price cutting, advance market information, understanding as to how market quotations should be influenced are among the things complained of by the independent dealers.

The magnitude of the packers' operations is ominous to these dealers. Said an eastern produce dealer to the Commission's examiner:

> The packers have become such large factors in the handling of butter and eggs that it is possible for them to manipulate the market at will.

It is further claimed by some independents that price cutting seems to be used by all packers in securing trade. Other independents claim that there is too much difference between New York and Chicago quotations on butter, more than the freight differential warrants. Frequently New York quotations are 2 cents per pound higher than Chicago prices, whereas the difference in freight rates is only 1 cent.

Theoretically price quotations for dairy products are representative of prices arrived at on an open market. But analysis of the methods used by the various butter and produce boards in arriving at the published quotations shows a weakness in the system. And this weakness lends additional strength to the packers' methods outlined above.

Three general bases are used by dairy exchanges in arriving at quotations: Auction sales of the exchange; average quotations for actual sales and for bids on the exchange; and prices collected by reporting agencies from individual firms.

Selling at auction is practiced on the San Francisco Wholesale Dairy Produce Exchange by overstocked members. On the Los Angeles Produce Exchange the quoted prices are normally the closing prices based on sales, bids, or offers. In Chicago the Butter and Egg Board accepts the quotations of the Howard Bartels Co. and passes them to the Western Union Telegraph Co. for publication. Likewise in New York the Mercantile Exchange uses the services of the Urner-Barry Co. for gathering butter quotations, which are

[1] Letter quoted in full in Report of the Federal Trade Commission on the Meat-Packing Industry, Pt. II, p. 144.

passed by wire to other cities. The actual business on the Mercantile Exchange is a purely auction business and no cognizance of sales to the Government and of sales and purchases by packers through brokers is taken in arriving at these quotations.

Obviously there is no guarantee that the reporting agencies ever get all actual sales. It is even doubtful whether they get all characteristic sales for a given day. It is certain that they never get quotations on sales made to packers under private terms (p. t.). One of the reasons for this is put as follows:

To advertise that large interests are in the market would tend to raise prices.

The result is that the exchange prices are not always the market prices for a given day. That this is so is admitted by produce dealers themselves. Says the Hanford Produce Co., of Sioux City, Iowa, in its letter dated June 14, 1918, to the Federal Trade Commission:

> In selling butter and eggs we use the New York market as a basis, it being our endeavor at all times to obtain for our best butter the New York market for extras delivered in New York.

For the Boston produce market the Chamber of Commerce Committee on Butter, Cheese, and Eggs meets weekly and decides "what is the real wholesale value of the various grades of butter, cheese and eggs, and what in all fairness should be the return price to the shippers." At the same time shipments which are not sent for sale on commission but sold under yearly agreement to the Boston dealers are sold 1 or 2 cents under or over this weekly quotation.

While the Chamber of Commerce Committee may be said to approximate the wholesale price to shippers, there is the Boston Fruit & Produce Exchange, which publishes daily quotations through its Market-Report Committee. These quotations are not necessarily identical with those of the Chamber of Commerce, but are determined more or less by the same factors, such as the New York and Chicago markets. Some of the large butter producers on the committee like Albert E. Mills, of Farnsworth, Benjamin & Mills, Boston, are opposed to any quotations, holding that butter shipments should be sent on consignment. Though none of the packers seems to be a member of any of these produce-exchange price committees, their district managers and branch-house managers can swing the market one way or the other through their large local, Government, and export orders. The butter prices for the past year have been influenced much more by other factors than by the produce exchanges. Thus, when in August, 1918, the Government commandeered about 60 per cent of all cold-storage butter, butter prices jumped up regardless of these produce exchanges. The packers were among the largest holders of butter and they best knew the actual available supplies.

CHAPTER V.—GROCERY FOODS: CANNED, PACKAGED, AND BULK.

Section 1.—Cereals and cereal products.

The Armour interests are engaged in both the production and the distribution of cereals and cereal products. The other big packers do not manufacture these products and they distribute them, if at all, only as local conditions may warrant. Both Wilson & Co., Inc., and Morris & Co., however, are currently listing rice for sale in their branch house price lists.

ARMOUR GRAIN CO.'S GRAIN AND PACKAGED-CEREAL BUSINESS.—Grain is dealt in and cereal foods produced by the Armour interests through the Armour Grain Co., of Chicago. This company has a nominal capital of $1,000,000, of which the Armour family owns $868,700. Stock, moreover, to the amount of $125,000 held in the name of George E. Marcy, president of the company, is assigned in blank to the Armour Grain Co. as security for a loan of a greater amount. The company reported surplus and undivided profits at the close of the fiscal year June 30, 1917, of $5,426,830.06, after deducting a dividend of 78 per cent on the capital stock. The year's net earnings amounted to $2,908,912.79, or 290 per cent on the capital stock and 68 per cent on the net worth of the company, including capital, surplus, and undivided profits, as reported at the close of the fiscal year 1916.

The following table shows the net earnings and dividends of the Armour Grain Co. by years for the five years closing June 30, 1917, and the totals and yearly averages for the five-year period:

TABLE 41.—*The Armour Grain Co.—Net earnings, dividends, and per cent of dividends on capital stock, by years, 1913–1917, and yearly average.*

Year.	Net earnings.	Dividends.	
		Amount.	Per cent on capital stock.
1913	$419,424.46	$154,750	15.47
1914	785,820.86	197,250	19.72
1915	1,873,425.28	168,750	16.87
1916	277,343.40	396,500	39.65
1917	2,908,912.79	780,000	78.00
Total five year period	6,264,926.79	1,697,250	169.72
Yearly average	1,252,985.35	339,450	33.94

The Armour Grain Co., directly or through its subsidiary or trade-name companies, operates grain elevators and warehouses and sells

on commission and trades in grain including wheat, corn, oats, rye, and barley. The following subsidiary and trade-name companies, all, with the exception of the first, fully owned by the Armour Grain Co., handle grain: The Erie Co., New York, capitalized at $50,000, of which the Armour Grain Co. holds $32,500; the Armour Canadian Grain Co., Winnipeg, capitalized at $40,000; Export Elevator Co., Buffalo, capitalized at $25,000; the Milwaukee Elevator Co., Chicago, capitalized at $50,000[1]; the Neola Elevator Co., Chicago, capitalized at $25,000[1]; and the Hansen Grain Co., Winnipeg, capitalized at $50,000. The latter was reported in process of liquidation in 1918.

More than 90 country elevators, largely west and northwest of Chicago and west of Milwaukee, are operated by the Armour Grain Co. including the above subsidiaries. It has terminal elevators at Chicago, Kansas City, Minneapolis, Buffalo, and Jersey City. Its eight at Chicago and two at Kansas City constitute 25 per cent of the total elevator capacity of those cities. In 1917 its sales were 74,847,000 bushels, or 22.6 per cent of all receipts of grain at Chicago, the greatest market of the world, and its business is rapidly growing.

It is in the manufacture and distribution of cereal products and breakfast foods, however, that Armour's widening activity in foods ready for consumption becomes apparent. (For trade estimates of packer control see Exhibit XII.) In the branch-house sales of 1918 such items are included as rolled oats, corn flakes, spaghetti, noodles, and pancake flour, which do not appear in the sales of 1916. These and other like products distributed by Armour & Co. are manufactured by the Armour Grain Co. or its trade-name subsidiaries.

In the latter part of 1916 or the first of 1917 the Armour Grain Co. acquired the cereal mill of the Buffalo Cereal Co., Buffalo, N. Y. This company was reorganized and, in May, 1916, incorporated under the laws of New York with a capital stock of $1,000 owned by the Armour Grain Co. The mill is operated and the products put out under the name of the "Buffalo Cereal Co., owned and operated by the Armour Grain Co."

So, also, the cereal mills known as the Mapl-Flake Mills, Battle Creek, Mich., formerly owned by a corporation of that name, were purchased by the Armour Grain Co., September 1, 1917. All of the stock of the corporation, Mapl-Flake Mills, was transferred to the Armour Grain Co. in order to continue the products under the old names and brands, and the property is operated by the Armour Grain Co. under the name of the "Mapl-Flake Mills, owned by the Armour Grain Co."

Other cereal mills are operated by the Armour Grain Co. under its own name, one of which, at Milwaukee, is leased from J. F. and A. L. Kern at a yearly rental of $27,000.

[1] Reported inactive since May 23, 1917.

As indicative of the methods followed by Armour & Co. in the introduction of its cereals and as bearing on the charge, denied in its advertising, that this company is doing retail business, the following letters or excerpts and inclosures are presented:

(1) From the salesman of a Michigan firm, under date of May 20, 1919.

Referring to our conversation of Saturday afternoon, in regard to the Armour Company's way of forcing their goods on customers, would say: I called on Mr. ——— [grocer], ——— St., ——— [city]. Mr. ——— informed me that the packer told him that if he did not handle their goods, flakes especially, they would put in a complete line next door, a meat market, and sell at so low a price that he would be out of the game.

Mr. ——— had on a shelf in the back corner of his store, two packages of Armour Flakes and a few of the same brand Rolled Oats. However, Mr. ——— does not mention them, and only sells them when a customer insists on having that particular brand.

(2) From a Chicago wholesale grocer, August 24, 1918:

Replying to your inquiry about unfair competition, word has come to this department repeatedly that Armour & Co. made it "inconvenient" for many of their customers to buy meats or get the selections and quality wanted unless they bought Armour's Rolled Oats. This same firm is said to have sold canned tomatoes at prices considerably under the market to customers who purchased "Armour's Corn Flakes."

(3) From a Texas firm, March 7, 1919:

A salesman representing a specialty line of goods different from ours told the writer a few days ago that he happened to be in a retail store when a packing-house salesman came in. The retailer told him to send out six strips of bacon and a can of lard. The salesman thanked him and then remarked: "We are now putting out, as you probably know, the best corn flake on the market, and the price is right, and I am going to send you out five cases." The retailer told him that under no circumstances would he handle his corn flakes; that he handled Post Toasties and was satisfied with the goods, and if the packing house sent out five cases, or any cases at all, they would be returned, but be sure and get the lard and bacon out immediately as he needed the goods to fill orders with. The order was filled, including the five cases corn flakes. The retailer told the driver to take the corn flakes back; that under no circumstances would he handle same. The driver then went to the phone and called the packing house, and asked the retailer to talk. The boss told the retailer that the entries had already been made in the books and that they could [not] enter a credit for part of a shipment, and that if he would not take the corn flakes he could return the entire shipment. He further stated that he could keep the corn flakes for sixty days and if he had any unsold portion at the end of that time they could be returned. The retailer was waiting to fill his orders with bacon and lard, and under the circumstances he accepted the corn flakes in accordance with the conditions mentioned above.

(4) From a salesman of a Chicago grocery firm, August, 1918:

Method by which Armour & Co. enticed Zion stores to buy Armour's package Oats. On invoice sold, dating of 60 days extra, with discount allowed to end of

that time. For first two or three shipments rebate of 40¢ per case allowed customers.

When oats were established firmly with trade dating and rebate withdrawn.

(5) From the salesman of a Nebraska company, January 21, 1919:

Under separate cover I am mailing to you a package of Armour's Macaroni that has recently appeared in some of the retail stores in Indianapolis. Armour & Co. are selling and delivering direct at a price of $3.70 for a case of 4 doz. In order to sell the retail trade, they guarantee the sale of the goods. After the merchant receives the goods, they work his neighborhood from house to house, selling the housewives and draw from the merchants stock to fill their orders, paying the merchants 10% for each package. This for your information.

(6) From a wholesale grocer in Texas, June 10, 1919:

We enclose herewith a sales slip, of Armour Grain Company, which was sold on 5/13/19, consisting of two 15¢ packages of Armour's Corn Flakes and one 10¢ package of Armour's Spaghetti, for the sum of 35¢.

You will notice that the retail price of these articles figures 40¢, thus saving the consumer 5¢ on this purchase. The order was turned in to be delivered through ———, retail grocers of this city, by Miss ——— [saleslady].

Instead of turning these in through Mr. ——— [grocer], however, Armour & Co., the meat packers, had their large three ton truck make the delivery of these cereals. The lady [the purchaser] in question, when the delivery was made in this manner, refused to accept same, stating that she had ordered through her local grocer ———. on ——— St.

This goes to show the length to which the Armour Grain Company, in conjunction with the Armour & Company, would go in order to get their cereals in with the consumer.

(7) The following is a copy of the original sales slip referred to in the above letter. As submitted to the Commission it was properly filled out and signed for the order indicated in the letter:

CITY ——— STATE ——— DATE ——— 191

For the sum of ——— cents we agree to deliver to

Name.

No. Street.

——— Regular Size 15 cent packages Thick Armour's Corn Flakes.
——— Regular Size 13 cent packages Armour's Oats (2 Pkgs. 25¢).
——— Regular Size 15 cent packages Armour's Pancake Flour.
——— Regular Size 10 cent packages Armour's Macaroni.
——— Regular Size 10 cent packages Armour's Spaghetti.
——— Regular Size 10 cent packages Armour's Noodles.

Goods will be delivered to you about one week from above date for the following Grocer:

Name.

No. Street.

Pay ONLY when goods are delivered.

ARMOUR GRAIN COMPANY

By ———,

Saleslady.

RICE.—The spectacular entry into the merchandising of rice in 1917 by Armour & Co., which became within the year "the largest rice dealer in the world," is indicative of the power which such an organization can on short notice exercise in the marketing of any food commodity. Prior to 1917 little rice had been sold by this company, and such as was handled was solely on the initiative of branch houses, some of which are permitted to trade to a limited extent in a product which because of local conditions can be handled profitably and which the general office in Chicago is not buying in a large way for the branch house.

Dealings in rice under Armour & Co.'s system of accounting are recorded in the department known as "Canned Fish, Canned Vegetables, and Sundries" (see Exhibit XVII). In addition to rice there are included in "Sundries" such foods as table condiments, corn syrup, olives, sauerkraut, rolled oats, coffee, and raw beans. It would naturally be supposed that the records of this department would show separately the purchases and sales of each product, but such is not the case. In order to ascertain the total quantity of rice actually bought and sold it would be necessary to accumulate for all of the branch houses handling rice the weights of and the amounts paid for rice and the sales of the same. The general accounting records of Armour & Co. do not show these transactions, as the rice is ordered shipped direct to each branch house and paid for there.

There was, however, for the early period of Armour & Co.'s trading in rice a memorandum kept by the statistical department showing approximately the purchases and sales of rice by branch houses. The memorandum showing the purchases prior to September 17, 1917, was declared by an officer of the company to have been destroyed. But the sales from March 1 to September 1 of that year amounted to more than 10,000,000 pounds (see Exhibit XIII). The company had therefore during this period either purchased or accumulated from prior purchases an equal quantity. On September 17 of that year over 5,000,000 pounds were purchased, and altogether during the last two weeks of September more than 10,000,000 pounds were bought and from Sept. 17, 1917, to Feb. 2, 1918, purchases of over 20,600,000 pounds were made. During the 11 months ending February 2, 1918, total purchases and accumulations of not less than 31,000,000 pounds were made, two-thirds of these being made in a little over four months (see Exhibit XIV).

During these same 11 months sales of a little more than 16,000,000 pounds of rice were made by Armour & Co. through branch houses, for which $1,163,306.93 was received. This, however, does not include direct sales or sales by car route or selling agencies other than the branch house, representing perhaps 5 per cent of the total sales.

In the four and a half months prior to February, 1918, during which purchases of over 20,600,000 pounds of rice were made, sales were effected of less than 6,000,000 pounds. Roundly, 15,000,000 pounds were accumulated in this period of rising prices.

The greatest advance in price of rice in 1917 occurred from March to June. The average sale price of the 10,315,710 pounds sold up to September 1 was $0.068. What part of this rice had been accumulated at the low prices of $0.03 to $0.04 which prevailed prior to this period is not known, since Armour & Co. did not furnish the Commission this information. Although the average purchase price of the 20,686,300 pounds bought from September 17, 1917, to February 2, 1918, was $0.074, and the average sale price of the 5,824,481 pounds sold from September, 1917, to January, 1918, inclusive, was $0.078, the relatively low margin of gross profit was applicable to less than one-third of the total purchases. The balance with whatever accumulations may have been carried over from purchases made at a lower price prior to this period was being held for the higher prices which prevailed in 1918.

The large purchase of rice of September 17, 1917, and practically all purchases from that date to February, 1918, were made from one company, the Standard Rice Milling Co., which has mills in Louisiana and Texas and is rated as one of the largest rice-milling companies of the country. A brokerage commission of $0.06 per 100 pounds of rice bought was allowed Armour & Co. by this firm because of direct purchase. This would amount on total purchases to a sum that in and of itself would go far toward paying the additional expense made necessary by the handling of this new commodity.

The claim is made by Armour & Co. that the national distribution of rice was entirely inadequate prior to its entry into the business of handling rice and that its aim was in part to meet a public necessity and perform a public service. The above facts, however, show that not only were enormous purchases being effected by this company, but large accumulations were made and held for a considerable period on a rising market and at a time when the American people were being urged on the grounds of national necessity, even at some personal sacrifice, to find in rice a substitute for wheat and meat. The attention of the Commission has been called to many instances of wholesale grocers who never before had had difficulty in securing a supply of rice, but who during this period were unable to find rice except in the hands of meat packers, who sometimes refused to supply the wholesaler. To whatever extent this situation obtained, to that extent the meat packers instead of facilitating distribution interposed their great organizations in the established channels of trade solely for the purpose of taking toll.

The following give expression to a widespread complaint prevalent in 1917 and 1918:

From a Georgia banker's letter to the Commission dated May 5, 1917:

I want to tell you of a transaction that came directly to my notice on yesterday afternoon. On yesterday afternoon while seated in the office of one of our jobbing houses here talking with the manager, he opened a letter from Wilson & Company, packers and dealers in fresh meats, etc., and I noticed that he took out of the envelope an invoice covering a shipment of about one hundred and fifty sacks of rice. I told the manager that it was somewhat singular that he was buying rice from the packers of fresh meats, as this appeared to me to be entirely out of their line. He replied that all of the rice had been bought up by the packers and he was compelled to buy through that channel. I am thoroughly convinced that commodities other than rice have also been bought up by these people at low prices and are being sold by them to the trade at enormous profits.

A Boston wholesale grocer said September 6, 1918:

Armour & Co. went into the rice business on a speculative basis, and not long ago, when there came such a shortage of rice that all dealers were out, Armour's men came to wholesale dealers offering plenty of rice in Armour packages, rice which should have been allowed to come along natural channels and prevented the shortage and higher prices.

A Texas wholesale grocery firm under date of August 26, 1918, wrote:

As an example of the business tactics of the meat packers we would refer you to the heavy purchase of rice made during the Spring of 1917 by Armour & Co. just at the time when Mr. Armour was posing as a great philanthropist and public spirited citizen. This firm quietly bought all the available rice in this section, retiring same from the market, and some few weeks later they offered same for sale at an advance of $2 to $3 per sack over the purchase price.

A Philadelphia broker and commission merchant on August 27, 1918, said:

Last month the wholesalers here had no rice at all, but Swift & Co. had control of the supply and refused to sell to wholesale grocers; they using the rice as a leverage to help them sell other products.

A New York State wholesale grocer, September 17, 1918, declared:

Just now Morris, Wilson and others are booking orders for future delivery in canned salmon, codfish and rice, when the wholesale grocers do not know where they will be able to get many of these articles nor can they see how the packers can so operate without advance information of some kind.

The packers, notably Armour, are offering for sale certain fancy rice which it is peculiar to see when none of this rice is obtainable anywhere else in the market.

One of the largest wholesale grocers of New York City said to an agent of the Commission, August 30, 1918, as reported by the agent:

That Armour is selling new crop rice for 8½ cents for which they were compelled to ask 9½ cents and on which they made only about 11½% profit;

that the price was fixed by the Food Administration at the mill but that as the rice cost his company practically 8½ cents he did not believe Armour & Co. really paid the prices charged others. Further, that Armour & Co. has on hand fancy rice from the last crop that he did not believe they could have had unless they kept on hand previously a larger amount than that allowed by the Food Administration as there was no such rice to be had elsewhere at any price.

The president of a Massachusetts wholesale grocery firm on September 10, 1918, said:

Some regulation should prevent any man going into the production areas and buying up an entire crop. This was the case of tomatoes a year ago when Armour cornered the market so none could get canned tomatoes except from him. Recently no one except Armour had rice. This company has no rice at present and has not had for a long time.

Section 2.—Lard and butter substitutes.

Substitutes for butter and lard derived wholly or in part from vegetable oils are of rapidly growing importance. The oils most largely used for these purposes are cottonseed, coconut, and peanut, one of which, cottonseed oil, the most abundant and widely used of vegetable oils, is extensively produced and utilized in manufacture by the big packers. A résumé of packer activity in the production of cottonseed oil, described elsewhere in detail,[1] is here given.

CRUDE OIL.—The total production of crude cottonseed oil for the season of 1916–17, as reported to the Federal Trade Commission, was 172,212,016 gallons. During that season the Swift, Armour, and Morris interests owned 28 oil mills. Neither Cudahy nor Wilson was active in this field. The output of the three packers producing crude oil was as follows for the season of 1916–17:

TABLE 42.—*Crude cottonseed-oil production—Three big packers' proportion, season of 1916–17.*

	Crude oil produced.	
	Gallons.	Per cent.
Total, all companies	172,212,016	100.0
Swift & Co.	7,904,855	4.6
Armour & Co.	3,059,340	1.8
Morris & Co.	2,401,219	1.4
Total (Swift, Armour, Morris)	13,365,414	7.8

The position of the big packers in the production of crude oil, while important, is, therefore, not a dominating one, since their combined output amounts to less than 8 per cent of the production of the country. The three companies having the largest output in the

[1] Sec. 6, chap. 2, Pt. 1 of this Report.

season of 1916–17 were Southern Cotton Oil Co., producing 10.8 per cent of the total; American Cotton Oil Co., producing 9.3 per cent; and Proctor & Gamble, producing 7 per cent. The packers' position, however, in the production of refined cottonseed oil is far more significant than in that of crude.

REFINED OIL.—The total production of refined cottonseed oil for the United States in the season of 1916–17, as reported by producers to the Federal Trade Commission, was 201,389,368 gallons. All five of the big packers are active in this field. In 1917 they owned 15 refineries, the combined output of which amounted to almost one-third of the country's production of refined oil for the season of 1916–17. The production, by companies, was as follows:

TABLE 43.—*Refined cottonseed-oil production—Big packer proportion, season of 1916–17.*

	Crude oil.	Refined oil produced.	
	Gallons.	Gallons.	Per cent.
Total, all companies	216,590,373	201,389,368	100.0
Swift & Co	22,104,135	20,805,862	10.3
Armour & Co	17,443,372	16,272,101	8.1
Wilson & Co., Inc	15,207,176	14,220,823	7.1
Morris & Co	9,139,418	8,526,491	4.2
The Cudahy Packing Co	4,450,958	4,174,477	2.1
Total, Big Five	68,345,059	63,999,754	31.8

High concentration in cottonseed-oil refining is indicated by the percentage of the combined output of the big packers as shown above and the three chief companies in refining, Proctor & Gamble, the Southern Cotton Oil Co., and the American Cotton Oil Co. This percentage for the season of 1916–17 for the eight companies was 74.4. The significance of these production figures becomes more apparent when taken in connection with the big packers' production and distribution of the foods in preparation of which the cottonseed oil is largely used.

LARD COMPOUNDS AND LARD SUBSTITUTES.—Lard compounds are formed of a mixture of rendered hog fats and other animal or vegetable oils. Lard substitutes are composed of refined, deodorized cottonseed oil and stearin in the proportion of 80 to 85 per cent oil and 15 to 20 per cent stearin. The stearin may be beef or vegetable. The vegetable stearin is tending to supplant the animal stearin, and lard substitutes are in many instances wholly of vegetable substance. Cooking oils composed entirely of refined, deodorized, and hydrogenated vegetable fats, generally of cottonseed origin, are also being considerably used as a substitute for the animal shortening. Peanut oil for this purpose has recently been widely advertised.

Lard compounds are of relatively small importance, and in the statistics of production are included with lard substitutes. Lard substitutes, on the other hand, are being produced in growing volume and are even crowding lard itself for supremacy. The production of lard by slaughtering and meat-packing firms (comprising 98 per cent [1] of the production of all firms) declined 10 per cent from 1909 to 1914.[2] For the latter year the production by all firms amounted to 1,142,029,260 pounds.[3] Prior to the census of 1914 no statistics were collected by the Census Bureau for lard compounds and lard substitutes, but for that year the output of slaughtering and meat-packing establishments was 396,397,950 pounds.[4] This should be more than doubled (see Table 44 below) to secure the total production by all firms.

The lard compound and substitute production by slaughtering and meat-packing establishments as given above includes the manufacture not only of slaughterers but of meat packers not slaughterers and of those engaged not only in interstate trade, but in intrastate exclusively as well. On the other hand, it does not include the output of establishments which are operated or controlled by meat-packing firms, but which are not engaged in slaughtering or meat packing. The figures are therefore not strictly comparable with those secured by the Federal Trade Commission for the year 1916 showing an output by interstate slaughterers of 420,637,592 pounds of lard compounds and substitutes (see Table 44 below) or 6 per cent increase over 1914. The latter figures, while including the output of establishments which are operated or controlled by interstate slaughtering firms but which are not engaged in slaughtering or packing, do not include the manufacture of meat packers not slaughterers or of those engaged in intrastate trade only.

From a total output by all interstate slaughterers and all cottonseed-oil manufacturers of 550,073,835 pounds (exclusive of Armour's output [5]) in 1912, the production increased to 839,399,031 pounds in 1916. Excluding Armour's output from the 1916 total, the percentage of increase was 34.4.

The output of lard compounds and substitutes by interstate slaughterers for the first half of 1917, as reported to the Federal Trade Commission, had increased over the average half-yearly out-

[1] Census of Manufactures, 1914, Slaughtering and Meat Packing, p. 334. This percentage, while applying to value, closely approximates the percentage in terms of quantity.

[2] Census of Manufactures, 1914, Slaughtering and Meat Packing, p. 332. "Lard compounds and substitutes are now used largely for culinary purposes and this in a measure accounts for the decrease in lard production."

[3] Calculated on the assumption that the output of slaughtering and meat-packing establishments equals 98 per cent of the production by all firms. This output, as given by the Census of Manufactures, 1914, Slaughtering and Meat Packing, p. 333, is 1,119,188,675.

[4] Census of Manufactures, 1914, Slaughtering and Meat Packing, p. 333.

[5] Armour's output for 1912 was not available.

put of 1916, 29.5 per cent.[1] Firms engaged primarily in the production of cottonseed oil are also large manufacturers of these commodities. Though their output for the first half of 1917 declined as compared with the average half-yearly output of 1916, the total output of this group and of interstate slaughterers showed an increase of 14.3 per cent[1] (see Table 44 below).

Thus there is a rapidly growing manufacture of lard substitutes and in their production and distribution the five packers are largely interested.

THE GREAT PACKERS' POSITION IN LARD-COMPOUND AND LARD-SUBSTITUTE PRODUCTION.—The Federal Trade Commission has collected the statistics of production by all slaughterers doing an interstate business, and by all cottonseed-oil manufacturers. The following table shows the production of these two groups and of the Big Five packers individually and collectively:

TABLE 44.—*Lard-compound and lard-substitute production of interstate slaughterers and cottonseed-oil manufacturers—The five great packers' proportion, 1916, and Jan. 1 to June 30, 1917.*

	1916		Jan. 1 to June 30, 1917.	
	Pounds.	Per cent.	Pounds.	Per cent.
Interstate slaughterers, total[1]	420,637,592	50.1	272,364,789	56.8
Big Five, total[1]	356,425,708	42.5	236,836,185	49.4
Swift interests	143,773,024	17.1	94,029,815	19.6
Armour interests	99,736,105	11.9	68,256,493	14.2
Morris interests	44,164,386	5.3	28,710,614	6.0
Wilson & Co., Inc	39,565,769	4.7	27,996,345	5.9
The Cudahy Packing Co	29,186,424	3.5	17,842,918	3.7
All other interstate slaughterers	64,211,884	7.6	35,528,604	7.4
All cottonseed-oil manufacturers[2]	418,761,439	49.9	207,186,164	43.2
Total interstate slaughterers and cottonseed-oil manufacturers	839,399,031	100.0	479,550,953	100.0

[1] Includes production by the five packers in their cottonseed-oil plants.
[2] Excludes production by the five packers in their cottonseed-oil plants.

This table shows the output of only two groups of producers; it does not cover the total production of the country. The output of slaughterers doing only intrastate business and that of such producers as are not engaged in slaughtering or in cottonseed-oil production are not included. Nevertheless, out of this large proportion of the total production by all firms, the five packers, it will be noted, had 42.5 per cent in 1916 and 49.4 per cent in the first half of 1917, an increasing percentage of an increasing output.

[1] Segregated figures for the first half of 1916 are not available. Since there is some seasonal variation in output, the percentage of increase of the first half of 1917 over the first half of 1916 would no doubt vary somewhat from that given in the text.

In 1912 the output of the big packers (excluding Armour[1]) together with their cottonseed-oil plants, was 183,179,846 pounds, and in 1916, 256,689,603 pounds, an increase of 40 per cent. The output of the whole industry (excluding Armour) increased in the same period 34.4 per cent, as shown above. The nonpacker output increased only 31.6 per cent as against the four packers' 40 per cent increase.

The manufacture of lard compounds and lard substitutes by the packers is usually carried on at their packing plants. In addition, some of the five operate directly or through subsidiary companies cottonseed-oil refineries where these foods may be produced.

The following plants at which compounds and substitutes are manufactured by the big packers are grouped by packer interests and by primary character of the plant:

Swift packing plants:
- Swift & Co., Chicago, Ill.
- Swift & Co., Kansas City, Kans.
- Swift & Co., South Omaha, Nebr.
- Swift & Co., East St. Louis, Ill.
- Swift & Co., South St. Paul, Minn.
- Swift & Co., Fort Worth, Tex.
- Swift & Co., Jersey City, N. J.
- Swift & Co., Denver, Colo.
- North Packing & Provision Co., Somerville, Mass.
- Nevada Packing Co., Reno, Nev.
- Western Meat Co., San Francisco, Calif.
- Oakland Meat & Packing Co., Emeryville, Calif.
- Union Meat Co., North Portland, Oreg.[2]

Swift cottonseed-oil refineries:
- Swift & Co., Harvey, La.
- Swift & Co., Atlanta, Ga.
- Swift & Co., Memphis, Tenn.
- Swift & Co., Charlotte, N. C.

Armour packing plants:
- Armour & Co., Chicago, Ill.
- Armour & Co., Kansas City, Kans.
- Armour & Co., South Omaha, Nebr.
- Armour & Co., East St. Louis, Ill.
- Armour & Co., Fort Worth, Tex.
- Armour & Co., Jersey City, N. J.
- Armour & Co., Hamilton, Ont.
- Fowler Packing Co., Kansas City, Kans.
- Hammond Packing Co., South St. Joseph, Mo.
- Colorado Packing & Provision Co., Denver, Colo.
- Armstrong Packing Co., Dallas, Tex.[3]

[1] Armour's output for 1912 was not available.
[2] Manufactures lard substitutes, but not lard compounds.
[3] Controlled by Armour-Fllppen interests. See Part 1, p. 285.

Armour cottonseed-oil refineries:
Lookout Oil & Refining Co., Chattanooga, Tenn.
East St. Louis Cotton Oil Co., East St. Louis, Ill.
Morris packing plants:
Morris & Co., Chicago, Ill.
Morris & Co., East St. Louis, Ill.
Morris & Co., Kansas City, Kans.
Morris & Co., South Omaha, Nebr.
Morris & Co., Oklahoma City, Okla.
Other Morris plants:
Morris & Co., St. Louis, Mo.
Wilson packing plants:
Wilson & Co., Inc., Chicago, Ill.
Wilson & Co., Inc., Kansas City, Kans.
Wilson & Co., Inc., New York City.
Wilson & Co., Inc. (Okla.), Oklahoma City, Okla.
Wilson & Co., Inc. (Tenn.), Chattanooga, Tenn.
Wilson & Co., Inc. (Calif.), Los Angeles, Calif.
T. M. Sinclair & Co., Cedar Rapids, Iowa.
Mississippi Packing Co., Natchez, Miss.
Cudahy packing plants:
The Cudahy Packing Co., Omaha, Nebr.
The Cudahy Packing Co., Kansas City, Kans.
The Cudahy Packing Co., Wichita, Kans.
The Cudahy Packing Co., Los Angeles, Calif.
The Cudahy Packing Co., Sioux City, Iowa.
Cudahy cottonseed-oil refinery:
The Cudahy Packing Co., Memphis, Tenn.

BIG PACKERS' POSITION IN LARD-COMPOUND AND LARD-SUBSTITUTE DISTRIBUTION.—The sales of lard compounds and lard substitutes by the big packers (excluding Armour[1]) amounted in 1912 to 143,203,653 pounds and in 1916 to 212,787,964 pounds, an increase of 48.6 per cent. This, however, does not represent the full strength of packer distribution, since the sales of subsidiaries engaged primarily in the manufacture of cottonseed oil and its products were not available. The production of such subsidiaries amounted in 1912 to 33,602,381 pounds of lard substitute and in 1916 to 42,427,539 pounds. This would approximately represent the sales of these subsidiaries for those years, though on the one hand there may have been sales to other members of the Big Five group during the year or larger inventories at the close of the year than at its beginning, or on the other hand there may have been outside purchases during the year or smaller inventories at the close of the fiscal year than at its beginning.[2]

[1] Armour's sales for 1912 not available.

[2] The figures in the text were returned to the Commission on a date and a form different from those for the figures in Table 45. The 1912 and 1916 figures of the text are strictly comparable. The 1916 and 1918 figures of the table are similarly comparable. Were the 1916 sales of the table substituted for 1916 sales of the text or vice versa, the figures would not be strictly comparable.

The percentage of increase of sales points to a rapid growth in volume of packer sales even during the period prior to America's entrance into the war when the use of substitutes was less marked than in the period following. During this period, 1912–1916, while four of the big packers' sales increased 48.6 per cent, the total production of interstate slaughterers and cottonseed-oil manufacturers (excluding Armour) increased, as pointed out above, only 34.4 per cent.

The growth in lard-substitute sales for the two-year period 1916–1918 for the Big Five is shown by the following figures (for sales of other years see Exhibit XV):

TABLE 45.—*Lard-substitute sales of the five greater packers, with percentages of increase, 1916 and 1918.*

	1916	1918	
	Pounds.	Pounds.	Per cent increase over 1916.
Swift & Co.	[1] 122,040,400	[1] 188,973,200	55
Armour & Co.	97,933,531	137,619,132	40
Morris & Co.	42,998,410	56,071,311	30
Wilson & Co., Inc.	[2] 48,248,030	[2] 51,929,532	8
The Cudahy Packing Co.	27,630,000	51,090,000	85
Total.	338,850,371	485,683,175	43

[1] Production figures; sales figures not available.
[2] Some duplication is involved in the Wilson sales, owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

Sales of compounds and substitutes by the five big packers are made through producing plants, branch houses, hotel supply companies, produce houses, subsidiary selling agencies, car routes, and brokers.

Plants as follows were reported as handling, although not producing, compounds and substitutes:

Packing plants of the following Swift companies: Swift & Co., St. Louis, Mo.; Swift & Co., South St. Joseph, Mo.; Omaha Packing Co., Chicago, Ill.; G. H. Hammond Co., Chicago, Ill.; Plankinton Packing Co., Milwaukee, Wis.; John P. Squire & Co., Cambridge, Mass.; Springfield Provision Co., Chicopee, Mass.; also the Underwood Market (trade name of Omaha Packing Co.), Chicago, Ill.

The packing plant of Armour & Co., Sioux City, Iowa, the Friedman Manufacturing Co., Chicago, Ill. (Armour owned), and the Pittsburg Provision & Packing Co., Pittsburgh, Pa. (Armour-Allerton owned.)

The packing plant of Morris & Co., New York City, operated under the name of Joseph Stern & Sons, Inc.

The packing plant of the following Wilson company: Albert Lea Packing Co., Inc., Albert Lea, Minn.

BUTTER SUBSTITUTES.—Among the several commodities that may be used as substitutes for butter and are manufactured and sold is oleomargarine (including butterine and all kinds of nut margarines).

Oleomargarine, as its name suggests, had originally as one of its components oleo oil from the beef animal. This was combined with neutral lard, vegetable oils, or butter. While the oleo oil is still thus used in the making of oleomargarine, it is being largely replaced by vegetable oils, and oleomargarine, sometimes called butterine, is often now wholly of vegetable substances, the principal ingredient being the oil of the cottonseed, coconut, or peanut, though a butter flavor may be imparted by mixing or churning the ingredients with milk. Other vegetable oils used are derived from the soy bean, corn or maize, and mustard seed.

Oleomargarine is fast becoming a food of common household use. According to the returns made to the Commissioner of Internal Revenue, the total production of oleomargarine, colored and uncolored, for the year ending June 30, 1909, was 92,282,815 pounds[1]; and for the fiscal year ending June 30, 1918, 326,528,839 pounds.[2] The annual output had increased during the nine-year period 253.8 per cent. In the calendar year of 1909 the production of creamery-made butter amounted to 624,764,653 pounds,[3] and in the calendar year 1918, 793,275,309 pounds,[4] an increase during the nine-year period of 27 per cent in the annual production as against 253.8 per cent increase in oleomargarine production during approximately the same period.

BIG PACKERS' POSITION IN THE PRODUCTION OF OLEOMARGARINE.—As presented elsewhere in this report,[5] the production of oleomargarine by the packer members of the Oleo Legislative Pool for the fiscal year closing June 30, 1916, was 63,597,823 pounds, or 41.7 per cent of the total production in the United States.[6] These packer members included all the Big Five except The Cudahy Packing Co.

The big packers' production of oleomargarine from January 1 to June 30, 1917, as reported to the Commission was 65,962,208 pounds. For the same period the total production for the country as a whole[7] was 129,123,918 pounds, thus giving the five 51.1 per cent of the total (see Table 46 below). The manufacture of the Big Five is in the main confined to slaughtering plants, though a few factories are equipped primarily for the making of this product.

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[1] Annual Report of the Commissioner of Internal Revenue, 1909, pp. 87–88.

[2] Annual Report of the Commissioner of Internal Revenue, 1918, pp. 123–124.

[3] Census of Manufactures, 1914, Butter, Cheese, and Condensed Milk, p. 354.

[4] Figures furnished by the Bureau of Markets. Neither these figures nor those for 1914 include butter made on the farm, which is a relatively declining quantity.

[5] See Report of the Federal Trade Commission on the Meat Packing Industry, Pt. I, Chap. V, sec. 10.

[6] Total for the United States, 152,509,913 pounds. Annual Report of the Commissioner of Internal Revenue, 1916, pp. 154, 155.

[7] Annual Report of the Commissioner of Internal Revenue, 1917, pp. 148, 150.

The following table shows the total production of oleomargarine by all manufacturers for the calendar year 1916 and the first six months of 1917 and the big-packer production collectively and by companies. The figures for the total production are from the published reports of the Internal Revenue Bureau. Not only are high percentages shown for the five for both periods, but, with the rapidly increasing total output for the country as a whole, as indicated by the figures, the five are not only holding their own but are considerably increasing their proportion.

TABLE 46.—*Oleomargarine production of five great packers and all other manufacturers, with packer proportion, 1916 and Jan. 1 to June 30, 1917.*

(Total, all manufacturers, from Annual Reports of the Commissioner of Internal Revenue, 1916 and 1917.)

	1916		Jan. 1 to June 30, 1917	
	Pounds.	Per cent.	Pounds.	Per cent.
Five great packers, total	80,403,174	42.9	65,962,208	51.1
Swift interests	34,978,792	18.7	26,148,217	20.3
Armour interests	22,607,670	12.0	24,230,419	18.7
Morris interests	15,804,707	8.4	11,725,181	9.1
Wilson & Co., Inc	6,325,693	3.4	3,858,391	3.0
The Cudahy Packing Co	686,312	0.4	[1]	.....
All other manufacturers [2]	107,160,069	57.1	63,161,710	48.9
Total, all manufacturers	[3] 187,563,243	100.0	[4] 129,123,918	100.0

[1] None reported.
[2] By subtraction.
[3] Annual Reports of the Commissioner of Internal Revenue, 1916, pp. 154, 155, and 1917, pp. 148, 150.
[4] Annual Report of the Commissioner of Internal Revenue, 1917, pp. 148, 150.

Oleomargarine is manufactured by the five at some of their packing plants and at other plants specially equipped for this purpose. The following were reported by the five packers or by companies controlled in their interest at which the output included in the foregoing table was manufactured:

Swift packing plants:
- Swift & Co., Chicago, Ill.
- Swift & Co., Kansas City, Kans.
- Swift & Co., South Omaha, Nebr.
- Swift & Co., East St. Louis, Ill.
- Swift & Co., South St. Paul, Minn.
- Swift & Co., Fort Worth, Tex.
- Swift & Co., Jersey City, N. J.
- Swift & Co., Denver, Colo.
- G. H. Hammond Co., Chicago, Ill.

Other Swift plants:
- Swift & Co., Butterine Factory, East Cambridge, Mass.

Armour packing plants:
- Armour & Co., Chicago, Ill.
- Armour & Co., Kansas City, Kans.

Other Armour plants:
Anglo-American Provision Co., Chicago, Ill.
Friedman Manufacturing Co., Chicago, Ill.
Morris packing plants:
Morris & Co., Chicago, Ill.
Morris & Co., East St. Louis, Ill.
Morris & Co., Kansas City, Kans.
Morris & Co., Omaha, Nebr.
Morris & Co., Oklahoma City, Okla.
Other Morris plants:
Morris & Co., St. Louis, Mo.
Holland Butterine Co., Jersey City, N. J.
Wilson packing plants:
Wilson & Co., Inc., Chicago, Ill.
Other Wilson plants:
Union Lard Corporation, New York City, N. Y.
Cudahy packing plants:
The Cudahy Packing Co., Kansas City, Kans.

BIG PACKERS' POSITION IN THE DISTRIBUTION OF OLEOMARGARINE.—The total oleomargarine sales by the Big Five in 1912 were 45,230,288 pounds, and in 1916, 79,928,788 pounds, an increase of 76.7 per cent.[1] These figures, as in the case of lard substitutes, are minimum, since they do not include the output of big packers' plants engaged primarily in the manufacture of cottonseed oil and its products. They do serve, however, to show the rapid growth in these packers' sales.

The rapid growth of the five packers for more recent years is shown by the following oleomargarine sales for 1916 and 1918 and the percentage of increase (for sales of other years see Exhibit XVI):

TABLE 47.—*Oleomargarine sales of the five greater packers, with percentages of increase, 1916 and 1918.*

	1916	1918	
	Pounds.	Pounds.	Per cent increase over 1916.
Swift & Co.	[2] 28,892,700	[1] 77,210,500	167
Armour & Co.	21,396,440	42,972,840	101
Morris & Co.	15,612,929	30,963,554	98
Wilson & Co., Inc.	[3] 11,543,745	[3] 17,912,565	55
The Cudahy Packing Co.	851,482	2,680,000	215
Total	78,297,296	171,739,459	119

[1] These figures were returned to the Commission on a date and a form different from those for the figures in Table 47 and do not quite agree for 1916

[2] Production figures; sales figures not available when this report was made to the Commission. The sales for this year as returned earlier by the company are of course not comparable with the 1918 production figures, and are therefore not used.

[3] Some duplication is involved in the Wilson sales, owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

As in the case of lard substitutes, oleomargarine sales by the five packers are made through a variety of selling agencies. The Vermont Supply Co., Boston, Mass., selling agency for G. H. Hammond Co., a Swift concern, makes a specialty of handling oleomargarine. A part of this business is done through the Fanuel Supply Co., of Boston, a trade name of the Vermont company. Wilson & Rogers, Philadelphia, a Libby company, is also a large handler of oleomargarine. Eckerson Co., Jersey City, N. J., and Sherman White & Co., Fort Wayne, Ind., both Morris companies, are large handlers of this product.

Packing plants of the following Swift companies were reported as not producing but handling oleomargarine: Swift & Co., South St. Joseph, Mo.; Omaha Packing Co., Chicago, Ill.; Plankinton Packing Co., Milwaukee, Wis.; White, Pevey & Dexter Co., Worcester, Mass.; Union Meat Co., North Portland, Oreg.

These Armour packing plants were reported as handling, although not producing, oleomargarine: South Omaha, Nebr.; East St. Louis, Ill.; Fort Worth, Tex.; Sioux City, Iowa; Fowler Packing Co., Kansas City, Kans.; Hammond Packing Co., South St. Joseph, Mo.; and Pittsburg Provision & Packing Co., Pittsburgh, Pa.

Packing plants of the following Wilson companies were reported as handling but not producing oleomargarine: Wilson & Co., Inc., Kansas City, Kans.; Wilson & Co., Inc., New York City; Wilson & Co., Inc. (Calif.), Los Angeles, Calif.; Wilson & Co., Inc. (Okla.), Oklahoma City, Okla.; Albert Lea Packing Co., Inc., Albert Lea, Minn.; and T. M. Sinclair & Co., Ltd., Cedar Rapids, Iowa.

Section 3.—Vegetables and vegetable products.

EXTENT AND GROWTH OF PACKER DISTRIBUTION.—One or another of the big packers has done some business in fresh vegetables, especially potatoes, shipping an occasional car to be sold by the branch house. Such houses also often purchase small orders of fresh vegetables in the local markets and deliver them as an accommodation to customers who include such items in their orders. Beyond this, however, the meat packers have not as yet been found to have gone as distributors of fresh vegetables, nor do they seem to be planning any immediate entry into this field. The chief effect they have upon the market of fresh vegetables is the indirect result of their distribution of canned vegetables and the effect on prices of their purchases of raw materials for their canning factories.

All the big meat packers are distributors of vegetables in cans, and Armour & Co. is also a large dealer in dried beans. As in the case of their fruit business, this is a recent development and one which is being expanded by leaps and bounds. (For trade estimates of packer control see Exhibit XII). The sales of canned vegetables by

Libby, McNeill & Libby (a Swift concern) have made remarkable growth during recent years. The company reported no sales of vegetables from its Pacific coast plants in 1915 (see Exhibit XVII A). In 1918 these sales amounted to 32,864,965 pounds.[1]

In addition to the sales of these vegetables from its own Pacific coast plants, Libby's sales of vegetables from other plants, particularly of asparagus and kraut, are extensive. Its sales of canned asparagus were, in 1915, 3,976,691 pounds; in 1916, 10,675,792 pounds; in 1917, 10,690,784 pounds; and in 1918, 9,749,287 pounds. The country's total pack is for these years available only for 1917 and in that year was 49,461,090 pounds. If the asparagus output of Libby's Pacific coast plants (5,514,990 pounds in 1917, at an average of 30 pounds to the case, see p. 234) can be regarded as approximate sales, Libby alone distributed 33 per cent of the 1917 pack.

Its sales of kraut [2] were in 1915, 5,489,004 pounds; in 1916, 4,298,775 pounds; in 1917, 8,451,887 pounds; and in 1918, 18,810,192 pounds. Of these years the country's total pack is available only for 1917. This was 73,095,957 pounds, of which Libby sold 11.5 per cent.[3]

The total tonnage sales by Libby, McNeill & Libby on all canned vegetables (including asparagus, tomatoes, kraut, peas, squash, sweet potatoes, pumpkin, spinach, corn, hominy, and the unsegregated vegetables from its Pacific coast plants) were in 1915,[2] 20,370,832 pounds, and in 1918, 71,275,996 pounds, a gain of 250 per cent. In the four years Libby's total tonnage sales on these canned vegetables amounted to 226,022,522 pounds.

Aside from the Libby company sales, the sales of canned vegetables by the five big packers are not segregated and therefore are not available. For the sales of Armour and Wilson, as included with the sales of other items, see Exhibit XVII B and C.

As in the case of canned fruit (see sec. 4), the rapidly growing business of the meat packers can not be due to the ownership of canning factories, since they entered the field of canning only after they had firmly established themselves as distributors, and in the distribution of canned vegetables they are still in a very much stronger position than in packing them. In distribution, the meat packers control their own pack and a considerable proportion of the pack of others, in addition to such goods as they may purchase through

[1] These sales are not shown by kinds of vegetables and are not included in the sales by kinds in the text following. The quantities produced by the Pacific coast plants for 1917, classified by kinds, are shown on p. 234.

[2] After the report had gone to press, Libby, McNeill & Libby revised its sales figures for 1915 and 1916 on kraut and for 1916 on canned tomatoes. See Exhibit XVII A, Note 3.

[3] Does not include a pack of about 99,375 pounds by Libby's Pacific coast plants. (See p. 234.)

brokers. Armour & Co., in 1917, for instance, purchased from the California Packing Corporation considerable quantities of its vegetable pack.

As in other new lines, the packers entered this field of distribution with the advantage of their large organization of branch houses and car routes, which were already in position to push a new line of goods among those who were customers for their meat and other goods. The control of transportation facilities and their ability to place a full line of canned vegetables in their branch houses, though it did not carry its share of overhead expenses and even showed a loss, have given the packers a marked advantage over the wholesale grocers.

The extensive range of canned vegetables and (in the case of Armour & Co.) varieties of dried beans carried by the branch houses of the meat packers is indicated by the lists in Exhibit XVIII, taken from their wholesale price lists and condensed by the elimination of statements as to the many sizes and styles of containers.

As the number of items in their price lists indicates, these concerns had in 1916 and 1917 already well extended the range of vegetables handled. The rapidity with which the range in kinds of vegetables and brands is extended when once the packers enter a new line is indicated by a comparison of the items carried in Morris & Co.'s Car Route Department Wholesale Weekly Price List of September 17, 1917, and of June 9, 1919. (See Exhibit XVIII.) Five items are given in the 1917 price list and 43 in the 1919 list.

MANUFACTURING AND PRODUCING.—The packers are more important producers of canned vegetables and dried beans than of canned and dried fruit, although their control of production is still far behind their control of distribution. Their pack of kraut, cabbage, and asparagus is especially large, as shown in the following table of their 1917 pack:

TABLE 48.—*Armour's and Swift's pack of kraut, cabbage, and asparagus, 1917.*

Commodity.	Size of can.	Total pack in cases (24 cans).	Pack of the meat packers.		
			Packer.	Cases.	Per cent of total pack.
Kraut	No. 3	1,379,169	Armour & Co. (Fremont Kraut Co.)	124,812	9.0
			Swift & Co. (Libby, McNeill & Libby)	210,024	15.2
Cabbage	No. 3	113,953	do	24,685	21.7
Asparagus	No. 3	1,648,703	do	212,171	12.9

Armour & Co., through ownership of 51 per cent of the stock, controls the Fremont Kraut Co., Fremont, Ohio, canners and packers

of sauerkraut; owns 50 per cent[1] of the Loudon Packing Co., Terre Haute, Ind., packer of tomato products and condiments, and owns 51 per cent of the stock of the Lewellyn Bean Co., Big Rapids, Mich., buyers, cleaners, storers, and sellers of beans. Wilson & Co., Inc., controls the Fame Canning Co.,[2] Indianapolis, Ind. This company has a total capital stock of $750,000 divided into $460,000 preferred (nonvoting) and $290,000 common. Wilson & Co., Inc., owns $100,000 of the preferred stock and 2,895 out of the 2,900 shares of common stock, the other 5 shares being held as directors' qualifying shares. The Fame Canning Co. packs corn, peas, tomatoes, pumpkin, squash, and succotash in plants located at Tipton, Franklin, Anderson, and Shelbyville, Ind., Ladysmith, Clear Lake, and Cumberland, Wis., and Three Oaks, Mich. There is also a canning plant at Whiteland, Ind., conducted under the name of Wilson & Co., Inc.

Morris & Co. holds 518 out of 776 shares of preferred, and 226 out of 337 shares of common stock of the Barataria Canning Co., Biloxi, Miss., which packs a little pumpkin, sweet potatoes and jams, although its principal business is the canning of shrimp and oysters.

Swift & Co. has operated as a packer of canned vegetables through its ownership of Libby, McNeill & Libby, by whom the goods were packed and labeled with the control labels of Swift & Co., Western Meat Co., G. H. Hammond Co., Union Meat Co., Plankinton Packing Co., and the Emery Food Co. (all Swift concerns) as well as with Libby's own labels. Libby, McNeill & Libby owns 50 per cent of the stock of Stetson & Ellison Co., of Camden, Del., manufacturer of fruit, vegetable, and tomato products. Correspondence between Mr. W. F. Burrows, of Libby, McNeill & Libby, and Mr. L. F. Swift indicates that the purchase by Wilson & Co., Inc., of the factories of Grafton Johnson Co. now known as the Fame Canning Co., increased the desire of the Libby company to go more heavily into the canning of vegetables, but as yet its principal canneries, except for the packing of kraut, are all on the Pacific coast, and these pack larger quantities of fruits than of vegetables. The location of the plants owned and operated by Libby, McNeill & Libby, with the kinds of vegetables packed at each, are as follows:

The Dalles, Oreg., packing string beans;
North Yakima, Wash., packing string beans and beets;
Kent, Wash., packing sauerkraut and pickles;
Sacramento, Calif., packing beets, cabbage, carrots, pumpkins, spinach, squash, string beans, sweet potatoes, tomatoes, and turnips;
Sunnyvale, Calif., packing cabbage, baked beans, pumpkin, spinach, string beans, and tomatoes;
Isleton, Ryde, and Lock, Calif., each packing asparagus;

[1] Actual percentage, 50.3.
[2] See sec. 3, Chap. I, for discussion of a change in ownership of this company reported to be in progress.

Selma, Calif., packing cabbage, carrots, and pumpkin;
Eau Claire, Wis., Goldwater, Mich., Demotte and Nappanee, Ind., each packing kraut, and Highland, Ind., packing both kraut and tomatoes.

Libby, McNeill & Libby does not itself conduct any farming operations for the supply of vegetables as it does for pineapples. It makes contracts with farmers for the output of their acreage and has a staff of buyers in connection with its canneries to make these contracts and also to make spot purchases of any other vegetables required for its pack. Contracts are secured, whenever possible, for the produce from agreed acreage for terms of 6 to 10 years, and the company plans to have under contract each year sufficient acreage to supply approximately 70 per cent of the vegetables needed for the estimated pack. Such contracts have been especially valuable to the company during the past few years while the market prices have been rapidly advancing. The canned vegetables packed in its Pacific coast plants by Libby, McNeill & Libby in 1917 amounted to 552,950 cases, including cans of various sizes. There should be added the output of the kraut factories in Wisconsin, Michigan, and Indiana, which for the fiscal year 1916 amounted to 17,816,382 pounds. The Pacific coast pack of canned vegetables was divided as follows:

Kinds of vegetables.	Cases.	Kinds of vegetables.	Cases.
Asparagus	183,833	Turnip	1,279
Tomatoes	247,493	Cabbage	3,103
Spinach	79,047	Sweet potatoes	19,074
Squash	1,025	Sauerkraut	1,875
Pumpkin	16,221		

Unlike the wholesale distributors, who assert that their business is being rapidly undermined by the packers' branch houses, the canners of vegetables have not yet regarded the meat packers as a serious menace. As they are the largest purchasers of the canners' output and have been negligible factors as competitors to the canners, their entry upon the field of manufacturing has been almost unnoted. If the packers, however, follow in this field the same policies as they have in others, the growing control of distribution and the entry into production are merely the first steps toward a steadily increasing development of their canning business until they shall be in a position to dominate the industry.

METHODS OF THE PACKERS.—As in the case of canned fruits, the most difficult competition the wholesale grocer has to meet in selling his canned vegetables is that furnished by the distributing agencies of the big meat packers. Libby, McNeill & Libby distributes both through Swift & Co.'s branch houses and through the wholesale

grocers. With this exception the canned vegetables and dried beans put up by the packers or purchased by them from other plants are marketed by their own branch houses and car routes direct to the retailers. They purchase supplies from vegetable canneries direct and through brokers, in competition with wholesale grocers. In this competition the packers have the advantage through control of large capital and credits and the ability to buy in much greater quantities. The large purchases by the meat packers have made it increasingly difficult for the wholesale grocers to find an available supply of canned vegetables for their trade.

While Libby, McNeill & Libby has ostensibly had the policy of distributing through wholesale grocers and has not come into direct competition with the grocers through its own branch houses, a large part of its pack has been marketed through Swift & Co. If the prices and conditions of sale by Libby, McNeill & Libby to the wholesale grocers and to Swift & Co. were the same, and if Swift & Co. charged to each line of goods its share of the cost of merchandising, such competition would be as fair as that between wholesale grocers themselves.

But it is apparent that in some districts the introduction and sale of Libby goods through the established wholesale grocers served to make the goods known to retailers and consumers in order that Swift & Co. might later obtain this business. When the branch house of Swift & Co. offers Libby goods to the retailer at a lower price than Libby, McNeill & Libby sold the same goods to the wholesale grocers, it is evident that Swift & Co. has received a considerable reduction in price or is selling below actual cost for the purpose of stifling competition.

For example, at the earnest solicitation of the State manager for Libby, McNeill & Libby, certain firms of wholesale grocers in Connecticut undertook to get Libby's canned goods established in their district. They succceeded in doing so, whereupon Swift's branch house representatives went to their customers and offered the same goods at prices as low as and lower than those at which the wholesale grocers had purchased the goods. Libby's canned beans, for example, had been sold to these wholesalers at $1.65 a case, on which they would expect to make a profit for handling. After learning who the retail customers were, Swift & Co. sold these retailers Libby's canned beans at $1.50 a case, 15 cents less than the wholesalers had paid for the same goods.

The meat packers, and notably Armour & Co., during the first half of 1919, have been selling No. 2 Standard Tomatoes as low as 90 cents to $1 a case. These goods cost an average of approximately $1.35 a case f. o. b. Maryland. As they were not carrying any

larger stocks than they could have well distributed before the new packing, it seems apparent that they were using their tomatoes to drive out the wholesale grocers by selling below cost. Canned tomatoes are such a minor detail in comparison with their total business that the loss involved is not of any immediate importance to the packers unless as an outlet for an undesired bookkeeping profit and a capitalization of the undisclosed profit, later, in a new monopoly. But by selling first one line and then another below cost, in one section of the country after another, the meat packers will, unless checked, soon eliminate from distribution of these goods those who are their only competitors. The wholesale grocer having only a restricted district, can not make a profit in another section of the country to compensate for a loss at home, nor can he afford to dispose of any single line of goods below cost since he has no monopoly line from which to recoup.

The packers are large speculative buyers, securing direct, through subsidiary companies, from brokers, and from other dealers as large quantities of canned vegetables as possible, both by spot purchases and by buying futures. These large purchases, restricting the supply of other dealers, tend to raise the market price and net the packers a large return at the expense of the consumer. One such speculative purchase illustrates the profit taken by the packer for a minimum of service. The Sunlit Fruit Co., of California, on January 19, 1917, sold futures to Gale Bros. for No. 2½ Standard Tomatoes at 95 cents per dozen, or $1.90 per case. On February 19, 1917, Gale Bros. assigned this contract to Libby, McNeill & Libby, San Francisco, at $1.05 per dozen, or $2.10 per case. Libby, McNeill & Libby ordered the Sunlit Fruit Co. to ship the 800 cases direct to A. S. Bowman, broker, St. John, New Brunswick. Libby, McNeill & Libby, San Francisco, billed these goods to Libby's Boston, Mass., branch with 636 cases at $1.40 per dozen and the balance at $1.50. What further profit was taken by Libby's Boston branch is not known as the final sales price received by the broker at St. John for Libby was not supplied. It should be noted, however, that the original packer shipped direct to Bowman and received only 95 cents per dozen.

With their steadily growing control of distribution, with the imminent strengthening of their position as manufacturers, with their ability to obtain the output of others and hold for speculative profits, the meat packers are assured of almost certain supremacy in this line of food products, unless regulatory measures are taken.

Section 4.—Fruits and fruit products.

Extent of packer distribution.—Although sales of fresh fruits appear on the books of the branch houses of the meat packers, the

evidence indicates that such sales are merely in the way of accommodation. Orders from institutions or Army camps may include a small order for fruit or other items not regularly carried by the branch house. In such cases the packer's branch house buys locally these items ordered and delivers them with the other goods. The prices charged for such items in all cases noted, however, show that each such accommodation gave the packer a good profit. There is no evidence that any of the Big Five is otherwise interested in the distribution of fresh fruit at the present time, and the only influence their general operations have on this field arises from their growth as distributors and manufacturers of canned and preserved fruit.

For a few years Armour & Co. operated in the field of fresh-fruit distribution through ownership of the Earl Fruit Co., of California. This company was originally organized by Mr. E. T. Earl for the purpose of buying California fruits from the growers and distributing them through the eastern markets. At that time the principal means of transporting fruit from California was furnished by the private cars of the Armour Car Lines. It is maintained that because of discrimination in rates and service Mr. Earl was practically forced out of business. In 1901 the Earl Fruit Co. was sold to Armour. After the Southern Pacific and Santa Fe systems built their own cars especially equipped for fruit carrying, they cut the refrigerator transportation rates on fruit. The fruit-carrying business from California was no longer so highly profitable to the Armour interests, and they withdrew from this field of transportation. Soon after withdrawing the Armour cars, Armour sold the control of the Earl Fruit Co. to Mr. Joseph Di Giorgio. At the present time, so far as the Commission has been able to ascertain, Armour has no money invested in this or in any other company engaged in the marketing of fresh fruits. It is worthy of note that control of transportation facilities made possible the profitable operation of the company and that when this control was lost Armour did not remain in a field where he would be on an equal competitive basis with all other distributors.

Although of little or no importance in the fresh-fruit business, the five meat packers are very large distributors of canned fruits, preserved fruits, fruit jams, jellies, etc., remote as these lines are from the business of slaughtering and meat packing. The packers are also distributors of dried fruits, but have been unable to become of such great importance in this line because dried fruits are largely controlled by cooperative marketing organizations, from which the packers must buy in order to obtain any large supply.

The development of the packers' canned and preserved fruit business is recent, but has been exceedingly rapid (for trade estimates

of packer control see Exhibit XII). This is well illustrated by the increase of Armour & Co.'s sales in canned and dried fruits from $507,294.10 in 1916 to $5,845,000 in 1918, a growth in volume of sales in 1918 over those of 1916 of 1,152 per cent. The percentage increase of tonnage sales, which are not available, would, of course, under rising prices be smaller. During the same period the department of fruit preserving, which includes extracts, phosphates, and other soda-fountain supplies, as well as preserves, crushed fruits, and fruit syrups, showed an increase of sales from $1,103,024.70 in 1916 [1] to $3,595,000 in 1918. Sales of grape juice increased from $554,095.31 in 1916 [1] to $1,025,000 in 1918.

Tonnage sales of canned pineapples [2] by Libby, McNeill & Libby (a Swift concern) were, in 1915, 13,574,739 pounds, and in 1918, 47,964,549 pounds, an increase in 1918 over 1915 of 253 per cent (see Exhibit XVII A for detail). The increase of the country's total pack for 1918 over that for 1914 (figures for 1915 pack not available) was only 63 per cent, the pack for 1914 being 2,356,140 cases and that for 1918 being 3,847,315 cases.[3] In 1918 Libby's sales were 27 per cent of the total pack. Since the other packers, particularly Armour, deal heavily in pineapple, the percentage for the five packers would run much higher than this if their sales in segregated form were available.

Libby's sales of other canned fruits were, in 1915, 36,424,628 pounds, and in 1918, 58,426,219 pounds, a growth of 60 per cent. Its sales of preserves were, in 1915, 2,198,633 pounds, and in 1918, 6,488,496 pounds, an increase of 195 per cent. The total sales of canned pineapples, other fruits, and preserves for the four years 1915–1918 amounted to 316,141,380 pounds. Wilson's sales of canned fruits (as combined with other items, see Exhibit XVII C) are not available in segregated form.

This increasing proportion of the distribution of fruit products of the country by the big packers is taking the business away from the former distributors, the wholesale grocers, so rapidly that the latter fear that the day is near when they will be eliminated and the distribution be concentrated entirely in the hands of the five meat-packing companies.

Although the packers are now factors also in the manufacturing field through ownership of canning factories, their advantage

[1] The sales for 1916 are for branch houses only, and not for all selling agencies, as are the sales for 1918. The sales for all selling agencies for both fruit-preserving and grape-juice departments were, for 1916, $1,942,427.28. But these sales for all selling agencies are not available for 1916 for each department separately.

[2] After the report had gone to press, Libby, McNeill & Libby revised its sales figures for 1915 and 1916 on canned pineapple. See Exhibit XVII A, Note 3.

[3] Hawaiian pack only. The pineapple pack of the States, less than 4 per cent of the total pack in 1914, was not available for 1918.

over the regular wholesale grocers and their increased control of canned and preserved fruit have not been due to the ownership of manufacturing plants. On the contrary, their entry into manufacturing is the natural sequence of the control of distribution. In the distribution of canned fruit the meat packers are in a much stronger position than in its production, controlling both their own pack and a considerable proportion of the pack of others. Armour & Co., for example, had a contract in 1917 with the California Packing Corporation for certain of its fruits. The percentages shown below represent the proportions which the minimum quantities stipulated in the contract bore to the total output of the California Packing Corporation in 1917 for the respective varieties. The contract, however, gave Armour & Co. the option of taking 10 per cent more or less than the quantities listed and in addition to the foregoing contained the following paragraph, the italicized part of which speaks for itself:

7. * * * Should any quantity be required in excess of the amount specified in the attached list, but within the stipulated increase of 10%, such products are to be billed at the list prices unless the party of the first part [the California Packing Corporation] is then quoting a lower price therefor, in which event the lower price is to prevail. *If orders are submitted in excess of quantities above referred to, with the stipulated increase, the party of the first part will fill such orders if it holds suitable stocks at that time, at prices and at such discounts as may be prevailing at the time of the receipt of said orders, according to the then market conditions.* [Italics the Commission's.]

The California Packing Corporation states that it has no such contract with Armour & Co. operative at the present time, and the Commission does not know of such being in existence.

	The California Packing Corporation's percentage of the total pack of 1917.	Minimum quantities stipulated in the Armour contract reduced to percentages of the California Packing Corporation's pack of 1917.
Peaches	26	16
Pears	29	9
Apples	5	24
Apricots	4	10
Cherries	17	16
Grapes	44	17
Pineapples	16	7
Berries	17	44
Plums and prunes	21	14

The advantages which the packers have in transportation and through their car-route and branch-house system of distribution, as pointed out in Chapter II, together with their ability to take a heavy loss on a new line of goods in order to get the line introduced, have made possible these inroads upon the distributing business of the

wholesale grocers. The meat packer is able to purchase the output of canning plants at whatever price it is found necessary to pay, and thus shut off from the regular channels of trade the previously existing sources of supply. The wholesale grocer is restricted in his offers to the prices upon which he can make a profit. The packers' large number of branch houses and car routes, reaching thousands of cities and towns throughout the country, gives them unequaled opportunity to dispose of their goods. If even with this distributing system it is necessary in some districts to take a loss for a time in a new line, the loss which would be ruinous to even large wholesale grocers is a matter of minor importance to the packers who handle hundreds of lines of goods, have already acquired a substantial monopoly on many of them, and are able presently to recoup their loss on the new line after they succeed in driving out competitors.

New as is this phase of the packers' business, its range is already quite as complete as that of regular distributors. Lists illustrative of the wide range, condensed by the elimination of such details as the various sizes of cans, jars, etc., from branch-house price lists of 1916 and 1917 of Armour & Co., Wilson & Co., Inc., and Swift & Co. are shown in Exhibit XIX. In those years Swift & Co., through ownership of Libby, McNeill & Libby, was the only concern obtaining from its own plants any considerable part of the canned and preserved fruit it distributed.

The rapid expansion of this phase of the packers' business and the enormous increase of the range of goods handled is well illustrated by growth in this field of Morris & Co. In the wholesale weekly price list of Morris's car-route department for September 17, 1917, only one fruit product appears. This was "Sliced Hawaiian Pineapple, Troubadour Brand." In the price list of the same department for June 9, 1919, however, there is almost as complete a list of canned and preserved fruits as a regular wholesale grocer would have. (See Exhibit XIX.)

MANUFACTURING AND PRODUCING.—Only one of the great packers, Swift & Co., had prior to 1919 been an important factor in the production of canned and preserved fruits, although other packers indicate their intention of entering this field. The Cudahy Packing Co. owns the Red Wing Co., Inc., manufacturers of grape juice, and Armour & Co. already owns two grape-juice factories and two other plants which preserve fruit.

Until 1919 Armour & Co. packed comparatively little fruit, buying from others a large part of the canned goods distributed by it. In 1916, its Chicago plant produced 1,000,000 pounds of jelly, its Ridgely, Md., plant packed 1,424,873 pounds of cold-pack strawberries, and its Frankfort, Mich., plant packed a smaller amount of several other

fruits. It reported in July, 1917, that it estimated that its entire pack of fruit for that year would not be greater than—

4,000 dozen No. 10 cans cherries in water.
6,000 dozen No. 10 cans yellow peeled peaches in water.
1,500 dozen No. 10 cans blackberries in water.
6,000 dozen No. 10 cans apples in water.
2,000 dozen No. 10 cans red raspberries in water.

Announcement was made through the public press in April, 1918, of the intention of Armour & Co. to enter the fruit canning industry in the Pacific coast territory with the building of two of the largest canneries in the country, one at Los Angeles, the other at San Jose. These plants, to be completed within a year, were each to have a capacity of from 20,000 to 30,000 tons of fruit a year.

More recently Mr. Armour publicly stated that—

It will interest producers to know that in order to help the fruit growers of California to get more for their products without it costing the consumer more, we have under consideration a plan to aid them to finance a cooperative fruit packing plant of their own. We expect to do the distributing for them.

Having established an organization of distribution, it is clearly the intention of Armour to invade this manufacturing field.[1] Such an invasion on the part of all the big meat packers is almost certain to result in their control of this line of footstuffs, for with distribution so largely in their hands they are in an even better strategic position for competition with manufacturers than they were when entering the distributing field in competition with wholesale distributors.

Libby, McNeill & Libby (until the latter part of 1918 owned by Swift & Co. and now, through the pro rata distribution of the Libby stock among the stockholders of Swift & Co., controlled by the same individuals who control Swift & Co.) is and has been for some time among the largest canners of fruit in the country. It owns the firm of Libby, McNeill & Libby, of Honolulu, Ltd., engaged in canning pineapples, which in turn owns the Honolulu Pine Co. (100 per cent), the Kahului Pine & Ranch Co. (66⅔ per cent), and the Korlau Fruit Co. (100 per cent), all engaged in the operation of pineapple plantations. It owns entirely the Ahuimanu Pine & Ranch Co. and the Thomas Pineapple Co., both of Honolulu. Stetson & Ellison Co., of Camden, Del., which does some canning of fruit, although principally engaged in vegetable canning, is 50 per cent owned by Libby, McNeill & Libby. The firm of Libby, McNeill & Libby of Canada, Chatham, Ontario, owned by Libby, McNeill & Libby, is also a canner. In addition to acquiring ownership of canning companies, it has acquired control of the Dunkley Co., of Kalamazoo, Mich., manu-

[1] The National Fruit Canning Co., Seattle, Wash., subsidiary of Armour & Co., began operations in 1919.

facturer of pitting and other fruit-handling machinery and mechanical supplies, through ownership of 57½ per cent of the common stock and 40 per cent of the preferred stock.

The fruit canning plants owned and operated by Libby, McNeill & Libby (that at Nimbus, Calif., is leased), with the fruits handled by each, are as follows:

The Dalles, Oreg., packing apples, apricots, cherries, peaches, pears, blackberries, loganberries, raspberries, and strawberries.

North Yakima, Wash., packing apples, apricots, cherries, peaches, pears, and plums.

Kent, Wash., packing blackberries.

Sacramento, Calif., packing apricots, cherries, peaches, pears, and plums.

Nimbus, Calif., packing ripe olives.

Selma, Calif., packing grapes, apricots, peaches, pears, and plums.

Sunnyvale, Calif., packing apricots, cherries, peaches, pears, and plums.

Kahului, Kaliki, and Island of Oahu, Hawaii, packing pineapples.

Buyers of fruit for Libby, McNeill & Libby are located at each cannery and in each fruit district in which the company might be interested and are controlled by a head buyer in San Francisco. These buyers are continually traveling among the growers. Contracts are made for periods varying from six to ten years with individuals and concerns raising the fruit desired. Officers of the company state that it is their intention to have under contract with the growers each year sufficient acreage to supply the raw material for about 70 per cent of the estimated pack of the season, any balance needed being bought on the open market at the best spot price obtainable.

In the case of pineapples Libby has gone even farther back and the pineapples packed by Libby, McNeill & Libby are for the most part produced through their own farming operations in the Hawaiian Islands on land leased for a long term of years. Only a small percentage of the raw pineapples used are secured by direct purchase from the grower, no contracts being made for this product from any acreage or for any term of years.

The fruit packed by Libby, McNeill & Libby in 1917 in its own plants amounted to 1,463,082 cases, including cans of various sizes, nearly one-half consisting of their pineapple pack. The pack reported is as follows:

Kinds of fruits.	Cases.
Pears	71,717
Egg plums	9,859
Green gage plums	11,173
Black cherries	29,362
Red cherries	103,184
Apricots	168,736
Apples	24,415
Yellow cling peaches	339,516
Yellow free peaches	71,682

Kinds of fruits.	Cases.
White cling peaches	2,233
Prunes	80
Strawberries	1,212
Grapes	12,115
Pineapples	617,798

These quantities refer only to those canned fruits packed by Libby, McNeill & Libby at its own plants. In addition large purchases were made from other canners.

The invasion of the canning industry by the big meat packers is just reaching the stage where the independent canners see reason to feel concern for their future. To enter the distributive field has been comparatively easy and to this the packers have given chief attention in the past, but if the same tactics are pursued as in other lines, the entry into production is but the beginning of an ever increasing control until the packers will here also be the dominant factors in the industry.

METHODS OF THE PACKERS.—The strongest competition which the wholesale grocer has to meet in marketing his canned fruit is that of the branch houses of the five big meat packers which are engaged in wholesaling to the retail trade all kinds of canned and dried fruits. The elaborate organization of the big packing companies gives them a great advantage through their branch-house and car-route marketing facilities. Having their own line of cars they are enabled to load quantities of such products as canned goods with their meat, obtaining thereby a more frequent and a more speedy delivery than can the wholesale grocer and at no greater expense.

While at first their energies were devoted entirely, with the exception of Swift & Co. through Libby, McNeill & Libby, to obtaining supplies from the plants of others and establishing their power of distribution, they are now entering the field of production, removing from the market former sources of supply of the regular distributor and in some lines have already made it extremely difficult for even the largest wholesalers to secure goods for their trade. So complete has become the control, especially by Libby, McNeill & Libby, over the pineapple supply, that one of the largest wholesale grocers in the country was unable in the summer of 1918 to secure any supply whatsoever.

With the exception of part of the pack of Libby, McNeill & Libby, the meat packers distribute their own pack of canned fruit, as well as the canned and dried fruit purchased from others, through their own branch houses and car routes directly to the retail dealers.

Swift & Co. in the same manner distributes a large part of the pack of Libby, McNeill & Libby, but the latter firm also distributes its goods, especially where its brands are not already known, through wholesale grocers. This method of distribution has been used in

some instances merely to get its goods introduced. Thereupon Swift & Co.'s branch house, in competition with the wholesale grocer who has bought and is distributing the goods of Libby, offers the same goods to the retail trade at a lower price than the wholesaler paid to Libby, McNeill & Libby.

It is also complained that when Libby, McNeill & Libby is overstocked with any line of goods, the surplus is sold at reduced prices by Swift & Co. in order that Libby can claim that it is not cutting prices.

The meat packers are large speculators. With their control of capital and credit they are enabled to buy as much of the output of canneries as is available, withdrawing this supply from other distributing channels, and then reselling upon a market in which their purchases have forced up the price. They purchase direct from the producers and through brokers they buy futures and in the spot market.

Armour & Co. has begun to be a large distributor of dried fruit and has caused the wholesale grocer to fear that here also he would soon find his source of supply shut off. Although it has handled large amounts, Armour & Co. has not yet succeeded in this conquest, and the strong cooperative marketing organizations of California may prevent it.

In 1917, Armour secured 10 carloads of dried peaches from the California Peach Growers, but only obtained two carloads in 1918. When he asked for 10 additional cars, the order was refused. During the year ending October 1, 1918, Armour & Co. purchased $102,783.60 of raisins direct from the California Associated Raisin Co. and secured $154,368.13 of raisins which were supplied by the California Associated Raisin Co., but sold and shipped to Armour & Co. by other packers of raisins. Armour & Co. expressed to a representative of the California Associated Raisin Co. the desire to buy 800 carloads of raisins of the 1918 crop, about 20 per cent of the total marketed by this company, which controls about 88 per cent of the entire crop of the country. These raisins were to be put up under Armour's own brand. As the company feared that any such arrangement would make it easy for Armour & Co. to get control of the distribution of this crop, the California Associated Raisin Co. at once adopted a policy, which had been under consideration, by which it would no longer put up its raisins under the private labels of distributors. Because of this Armour & Co. did not make the large purchase contemplated. It did, however, buy 609 tons of raisins. The attitude of independence of these and other growers' organizations indicates that there may be a few lines of foodstuffs of which even the enormous power of the meat packers can not gain control.

Section 5.—Canned and cured fish.

EXTENT OF PACKER DISTRIBUTION.—Four of the five big meat packers, viz, Armour & Co., Swift & Co., Wilson & Co., Inc., and Morris & Co., have become important distributors of canned fish, especially of salmon. With the general movement toward packer control of foods, which even indirectly compete with meat for the money of the consumer, the entry by the meat packers into this field was inevitable. (For trade estimates of packer control see Exhibit XII.)

Canned salmon is a most important food product, with a high proportion of protein and fat. The production of canned salmon in the United States has increased faster than the population, and hence could become a real rival of meat products. The salmon pack had increased from 2,000 cases in 1864, when the first salmon cannery was started in Sacramento, Calif., to 2,485,002 cases in 1900, while in 1917 the pack reached a total of 8,584,615 cases.[1]

Most salmon canners maintain no sales departments, do little or no advertising, and dispose of the bulk of the pack through brokers or selling agents. A notable characteristic of the industry is the prevalence of the general sales agent, who handles all or a large part of the output of one or more canneries as exclusive agent throughout the United States or certain sections of the country.[2]

Such a system makes comparatively easy the acquisition of a canner's entire output by any such large distributor as one of the big meat packers. The exclusive sales agent naturally prefers to dispose of the entire pack of the several canneries whose output he controls or to dispose of a large proportion of such pack to one buyer in one transaction than to sell in smaller lots to many wholesalers and jobbers. The fish canners themselves make direct arrangements with the meat packers in some cases. Thus, the Booth Fisheries Co. for several years has set aside a large portion of the pack of its subsidiary, the Northwestern Fisheries Co., for the use of Armour & Co. This was done against the wishes of the Kelley-Clarke Co., which was the exclusive sales agent for this canned-salmon pack, and which resigned the account in December, 1917, partly because of this reservation for Armour. Thus, the supply of the former distributors is cut off by the big meat packers, who have the additional advantage of widespread marketing facilities, extensive control of capital, which secures the best cash discounts, and an ability to withstand a loss if such is necessary to secure the business of the wholesaler.

In addition to distributing large quantities of all varieties of canned salmon, the meat packers also purchase and distribute, through their branch houses and car routes, canned tuna fish, canned

[1] See Report of the Federal Trade Commission on Canned Salmon, p. 7.
[2] Ibid., pp. 8 and 9.

lobster, sardines in oil, sardines in mustard, sardines in tomato sauce, smoked sardines, Norwegian sardines, sardines in olive oil; herring in oil, in mustard, and in tomato sauce; kippered herring, shrimp, haddies, oysters, minced clams, and crab meat of various qualities and sizes of cans. Swift & Co., through its selling agencies, also distributes several kinds of salt, spiced, smoked, and dried fish, including mackerel, herring, salmon, anchovies, sardines, bloaters, and codfish. Although Mr. Louis F. Swift, president of Swift & Co., has asserted that his firm has nothing to do with fish, the cured fish mentioned above are carried in the price lists of Swift & Co., as well as a considerable line of canned fish, and in addition the Commission discovered that cold-storage plants in St. Louis, Buffalo, Milwaukee, and Chicago had frozen as well as smoked fish in storage for Swift & Co. or one of its subsidiaries.

The extensive range of canned and cured fish handled by four of the big meat packers is indicated by the condensed lists shown in Exhibit XX.

Because of the system of accounting by which the volume of sales of fish is included with other items it is difficult to ascertain the quantities or value of canned fish distributed or to make a close estimate of the packers' increase of business in this field. During the fiscal year of 1916 Armour & Co.'s books record sales through branch houses entered under "K C Salmon" to the amount of $336,447.03, and under "Canned Fish and Vegetables" to the amount of $2,709,903.92. How much of this latter item should be credited to fish there is no method of learning. Under the 1918 method of accounting Armour & Co. carries these items under "Canned Fish, Vegetables, and Sundries," with no subdivisions. The total of items in 1916 branch-house sales which would now be carried under this title amounted to $4,231,622.62; the total in 1918, through all selling agencies, amounted to $29,355,000. Tonnage sales of canned and dried fish were not segregated for 1916. For 1917 these amounted to 15,274,423 pounds, and for 1918 to 20,346,164 pounds, an increase of 33 per cent (see Exhibit XVII B).

Libby, McNeill & Libby (a Swift concern) deals heavily in canned salmon. Its sales on this product show a rapid increase. These in 1915 were 16,698,062 pounds, and in 1918, 47,195,682 pounds, a growth of 183 per cent.[1] The total sales for the four years 1915–1918 were 124,375,647 pounds[1] (See Exhibit XVII A).

Segregated sales on canned and cured fish are not available for any other big packer. Wilson & Co., Inc., includes sales of canned fish with canned fruits and vegetables (see Exhibit XVII C).

[1] After the report had gone to press, Libby, McNeill & Libby revised its sales figures for 1915 and 1916 on canned salmon. See Exhibit XVII A, Note 3.

That the proportion of the total pack of canned salmon distributed by the packers not only is large but is rapidly growing is illustrated by Libby's growth in the sale of salmon. Out of a total world pack in 1915 of 7,539,592 cases, this concern's sales were 347,876 cases, or 4.6 per cent. In 1918 this percentage had increased to 9.7 per cent of the world pack, which amounted in that year to 10,100,127 cases. Since Libby represents only a portion of the Swift interests and since others of the big packers are large distributors of salmon, the percentage of packer sales would run high were figures available.

MANUFACTURING AND PRODUCING.—The control of such a commodity as canned fish is more easily secured during distribution than at the stage of production, and before the advent of the meat packers there were already strong organizations in the field of production. Hence the first steps of the meat packers into the fish business were in the way of securing the output of canneries and distributing this through their marketing agencies. Only two of the big meat packers have as yet become important factors in the fishing and canning industry. Swift & Co.'s ownership of Libby, McNeill & Libby has made it an important operator, and Wilson & Co., Inc., which entered the salmon business in 1917, dominates the Wilson-Wakefield [1] group of salmon interests. These two interests are among the five large groups of salmon canners, who together packed over 53 per cent of the total American output of salmon during 1917 and who dominate the entire industry.[2]

Libby, McNeill & Libby purchased the North Alaska Salmon Co. in November, 1916, and took over its plants. These, with the plants previously owned, made the company one of the largest canners of salmon. In 1917 Libby, McNeill & Libby sold the entire pack of the Taku Canning & Cold Storage Co., of Seattle, with a cannery at Taku Harbor, southeast Alaska, and received a 10 per cent commission as selling agents. Officers and stockholders of the Taku Canning & Cold Storage Co. control the Auk Bay Salmon Co. with a plant at Auk Bay, Alaska. Thus in addition to its own pack Libby, McNeill & Libby had practically complete control of the output of both companies which together packed 128,163 cases of salmon in 1917. The pack of Libby's own plants in 1917 amounted to 435,077 cases, or 5 per cent of the country's total output. With the packs of the two companies mentioned, Libby, McNeill & Libby controlled at the production point a total of 563,240 cases, or 6.5 per cent of the total output of the year,[3] a percentage exceeded only by that of three other salmon interests.

[1] See sec. 3, Chap. I, for a discussion of change and ownership of the Wilson Fsheries Co. reported to be in progress.

[2] See Report of the Federal Trade Commission on Canned Salmon, pp. 70–74.

[3] Ibid., p. 73.

Libby, McNeill & Libby now control canneries at Ekuk, Ugaguk, Kvichak, and Lockanok, western Alaska, which were formerly owned by the North Alaska Salmon Co., and plants at Nushagak, Koggiung, Yakutat, Kenai, and a saltery at Egushik. In connection with its canning business the company owns and operates the Yakutat and Southern Railway and a fleet of sailing vessels.

The interest of Swift & Co. and Libby, McNeill & Libby in the canning of fish has heretofore been confined to the packing of salmon. It may be expected, however, that as soon as any other line of fish canning has been sufficiently established by others to demonstrate its money-making possibilities, this organization will make plans to enter that field. This is illustrated by the following letter from the president of Libby, McNeill & Libby suggesting the advisability of canning tuna fish and sardines:

Louis F. Swift, Oct. 16, 1917
CHICAGO, *October 16, 1917*

Mr. L. F. SWIFT,
Mr. EDWARD F. SWIFT,
SWIFT & COMPANY,
U. S. Yards, Chicago.

TUNA FISH (ALSO SARDINES).

DEAR SIRS:—

The total pack of Tuna this year will probably exceed (Packed in cases 48 cans to a case)..... 500,000 c/s

The pack for the last five years has been as follows

1916	370,000 c/s
1915	340,000 "
1914	320,000 "
1913	130,000 "
1912	40,000 "

Tuna are caught with a hook and line and it would seem that sooner or later some plan would be devised whereby they could be caught in traps or nets. The supply seems inexhaustible. They are not caught during the spawning season, and only mature fish are taken. The United States Bureau of Fisheries are on record that there is no possible chance of the supply of fish being depleted so long as they are caught with hook and line.

The supply of Tuna is the most dependable in the waters around Long Beach, Wilmington and San Pedro, California, although there are some Tuna, also Sardine factories, in San Diego.

An effort is also being made by Southern California canners to can Yellow Tail Mackerel, Barracuda, Sea Bass, and Rock Cod, but the canning of Sardines has assumed large proportions, and it is the opinion of our Mr. Fay that the Sardine industry is more important than any of these, including Tuna.

If we should go into the Tuna packing business, it would be with the idea of also packing Sardines in Southern California:

In 1916 about 600,000 cases of Sardines were canned. In 1917 the pack will reach 2,000,000 cases, provided they can be sold. The waters abound in Sar-

dines and packers feel they will have no difficulty in getting a supply of sardines to take care of all the orders they can get.

Both the packs of Tuna and Sardines in Southern California need standardizing, as there are many canneries which have sprung up rapidly and a good many ideas are being expressed in the individual packs. Understand Mr. Gorrell, of the National Canners Association is now on his way to California to standardize these packs.

We had our Mr. Fay investigate the packing of Tuna in Southern California, and in talking with Mr. Houssels, President of the Long Beach Tuna Packing Company, Mr. Houssels offered to sell his plant and equipment for $60,000.00. Upon receipt of Mr. Fay's report I sent Mr. Larmon to investigate further, and especially the Long Beach Tuna Packing Company plant, and I enclose herewith copy of a telegram received from Mr. Larmon.

Mr. Fay says the value of the products of the fish canning industry of Southern California, including by-products, it is estimated will reach $12,000,000 this year.

It seems to me there is an opportunity to make some money in the Tuna Fish business and Sardine business, and I would be perfectly willing to tackle it, if we did not have so many other irons in the fire, and were not spending so much money in other plants.

Also Mr. Mc Dougall and I agree that we would like to get into the vegetable business before we go into the Tuna or Sardine business, but I would like your opinion on this.

Yours truly,

WFB W. F. BURROWS.

Wilson & Co., Inc., owns 99.9 per cent of the stock of the Pacific Fisheries Corporation and 51 per cent of the stock of the Wilson Fisheries Co.[1] Mr. Lee H. Wakefield is president of the Wilson Fisheries Co. and owns the remaining 49 per cent of the stock. The Pacific Fisheries Corporation is the owner of 99.5 per cent of the capital stock of the J. L. Smiley Co., with canneries at Ketchikan, southeast Alaska, and Blaine, Wash. The Wilson Fisheries Co. owns 98 per cent of the capital stock of the Alaska Herring & Sardine Co., with canneries at Port Walter, Baranof Island, southeast Alaska; 79 per cent of the stock of the Lisianski Packing Co., which has a new plant exceptionally well located on Stag Bay, Lisianski Strait, Alaska; and 100 per cent of the stock of the Apex Fish Co., with a cannery at Anacortes, Wash. The Apex Fish Co. in turn owns the Alden Banks Fish Co., the Brownie Fish Co., the Migley Fish Co., and the Superior Fish Co. Mr. Lee H. Wakefield, the president of the Wilson Fisheries Co. and owner of 49 per cent of its capital stock, owns 100 shares of the Northland Fish Co. of which he is president. The entire remainder of the stock of the Northland Fish Co., amounting to 200 shares, is held by men who are directors in one or more of the companies in this so-called Wilson-Wakefield group of fish canners.

[1] See Chap. 1, sec. 3, for discussion of a change in ownership of this company reported to be in progress.

The control of the output of fish canneries by sales agents is so much greater than the control of brokers in other commodities that the ownership of the brokerage firm of Wakefield & Co. by the Wilson Fisheries Co. is important in connection with the control of production. This brokerage firm, formerly unincorporated and owned by Mr. Lee H. Wakefield, was incorporated and its entire capital stock acquired by the Wilson Fisheries Co. in 1919. This firm is the exclusive selling agency for the Pure Food Fish Co., the Shaw Island Packing Co., the Beegle Packing Co., the Liberty Packing Co., and for R. L. Cole.

The total pack of the Wilson-Wakefield plants and of those whose output was controlled by this group in 1917 consisted of 353,704 cases, or 4.1 per cent of the total American pack in 1917. This pack included nothing from the Lisianski Packing Co. whose plant was not in operation until 1918 and which will increase their proportion.

Armour & Co. is not known to be directly interested in canning plants on the Pacific coast. It holds a small part, 4.41 per cent, of the stock of the Seacoast Canning Co., of Eastport, Me., which is engaged in packing sardines and other fish. When the Booth Fisheries Co. was reorganized in 1909 P. A. Valentine, of Armour & Co., and F. C. Letts composed the reorganization committee and the latter became the first president of the reorganized company. This is the principal company in a group of canners that, in 1917, packed 1,112,586 cases of salmon, or 13 per cent of the total pack.

Morris & Co., too, is not largely engaged in production of canned fish. It owns a controlling interest, 67 per cent, in the Barataria Canning Co., with plants at Biloxi, Miss., and New Orleans, La., which can shrimp and oysters.

Members of the Cudahy family are among the stockholders of the Pacific-American Fisheries Co., in which F. C. Letts is also a stockholder and director.

These smaller interests of meat packers in canning factories have significance only in connection with the more important holdings of Swift and Wilson through their subsidiary and affiliated companies, respectively, Libby, McNeill & Libby and the Wilson Fisheries Corporation, and in the fact that these acquisitions have been made within the space of two or three years and have been accompanied by a corresponding expansion in the field of distribution.

METHODS OF THE PACKERS.—The investigation of salmon canning[1] discloses a separation of the industry into groups of factories dominated by certain interests which exercise control principally through their command of the selling organizations. It was also disclosed that in the two groups dominated by the meat packers there is not

[1] Report of the Federal Trade Commission on Canned Salmon, December, 1918, pp. 70–74.

only the highest degree of control of distributing agencies but absolute ownership of factories as well.

The fish are caught principally in nets, traps, and seines often at considerable distances from the canneries. The districts of greatest production are southeast Alaska, west Alaska, Puget Sound, central Alaska and the Columbia River section, each varying as to species of salmon produced. Throughout these districts, located at the most strategic points, are the plants of the salmon packers. The fish are sometimes caught by independent fishermen and sold by them to the canneries, but it is estimated that 70 per cent of all the fish packed are caught by the employees of the canneries. Some canneries maintain large investments in fishing fleets.[1] Libby, McNeill & Libby, for example, reports that the company's own boats and tackle are furnished to the fishermen. Therefore, concerns like the meat packers, with extensive distributive agencies, have control of the fish they pack from the moment the fish enter the traps in Alaska until they are sold through a branch house to a retailer.

As has been indicated, the meat packers' control at the point of production is as yet far less in extent than is their control of distribution. Here they differ from some other large salmon packers, who, while controlling a large pack at the source, dispose of this through brokers to wholesale grocers and other distributors. The meat packers, on the contrary, are in the market as buyers of the packs of others. They buy from brokers representing fish packers and also use brokers as buying agents to represent them in securing the output of salmon plants. From the canners' or brokers' point of view the meat packers are classed as most desirable customers, since they buy enormous quantities of goods. It is, therefore, not a difficult matter for the meat packer to secure a large supply in addition to his own pack and to step between the wholesale grocer and the latter's former source of supply.

It has been estimated by brokers, who are in the best position to judge the extent of distributive control, that of a pack of approximately 10,000,000 cases of salmon packed on the Pacific coast during the year 1917 the meat packers secured control of almost 4,500,000 cases.

The Commission's inquiry on salmon canning indicated that a large control over prices has already been exercised by a few dominant interests. The general practice in this industry is for one or two concerns to announce the opening prices each season, and these are followed by the canners producing the great bulk of the pack. Without control of distributive agencies these concerns have at least a slight check put upon their tendency to raise such prices to a high

[1] Report of the Federal Trade Commission on Canned Salmon, December, 1918, p. 8.

level. The meat packers, however, are in possession of an elaborate distributive organization, and being already represented among the five great salmon-producing groups are in a position to strengthen their control to the point of dominance over the entire industry.

Section 6.—Condiments, relishes, etc.

RANGE OF PACKER ACTIVITY.—The hand of the large meat packer is being felt by manufacturers, wholesale grocers, and jobbers in the production and distribution of condiments and relishes, which embrace a considerable list of nonmeat food products falling in the specialty manufacturer's and the wholesale grocer's realm. The packer's advantage of regular, frequent, and quick transportation by means of highly specialized cars, of sufficient and well distributed storage facilities, of control over sources of supply through subsidiary companies, and of ability to distribute these products through a selling agency whose expense is largely borne by the meat products, decisively handicaps his less favored competitors. The growth and range of the packer's activities in the manufacture and distribution of this class of food supplies is noticeable.

Included in this group of foods which are manufactured and sold or bought and sold by the big packers are the following:

Allspice (ground).
Catsup.
Cinnamon.
Chili sauce.
Chow chow.
Cloves (ground).
Ginger.
Horseradish.
Marshmallow topping.
Minced clams.
Mustard.
Mustard and cream.
Nutmeg (ground).
Olive oil.
Olives (cured).
Olives (ripe).
Oyster cocktail sauce.
Pickles.
Pepper (whole and ground).
Sage.
Salt.
Salad dressing.
Salad oil.
Tabasco sauce.
Table sauce.
Pimento.
Tomato purée.
Tomato relish.
Worcestershire sauce.

Many of these materials, such as spices and seasonings, are required as ingredients in the preparation, seasoning, and preservation of meat products, and the packers were originally large purchasers of such materials solely for this use. From being buyers of these materials for the sole purpose of manufacturing meat by-products, they have gone a step further, and have become buyers for the purpose of their resale. And finally they have become buyers of both these and other nonmeat materials for the purpose of manufacturing and selling all kinds of nonmeat condiments and relishes.

PACKER COMPANIES MANUFACTURING CONDIMENTS, RELISHES, ETC.—Four of the five great packers are engaged in manufacturing these

products either directly or through their subsidiary and affiliated companies.

Libby, McNeill & Libby, now affiliated with Swift & Co., is a large manufacturer and distributor of many food products, including condiments and relishes. They maintain 114 pickle salting stations in Indiana, Wisconsin, and Michigan, and others in Colorado. In 1918 the Libby Company bought outright from Mullen-Blackledge-Nellis Co., Indianapolis, Ind., its plants located at Brazil, Ind., Effingham, Ill., and Paducah, Ky., manufacturing catsup, chili sauce, and other tomato products. This company also owns 50 per cent of the Stetson & Ellison Co., Camden, Del., which cans tomato products. Swift & Co. controls Consumers Cotton Oil Mills (not Inc.), Chicago, Ill., which manufactures cotton-oil products, and jointly with Armour & Co., the Independent Salt Co., Kanapolis, Kans., which manufactures salt.

Armour & Co. is interested in several condiment manufacturing companies. The Loudon Packing Co., Terre Haute, Ind., 50.3 per cent of whose stock is owned by Armour & Co., manufactures catsup, chili sauce, etc. The Fremont Kraut Co., Fremont, Ohio, 51 per cent of whose stock is owned by Armour & Co., manufactures kraut and pickles. The Independent Salt Co., Kanapolis, Kans., 50 per cent of whose stock is owned by Armour and 50 per cent by Swift, produces salt. The East St. Louis Cotton Oil Co., East St. Louis, Ill., entirely owned by Armour & Co., manufactures cotton-oil products.

Wilson & Co., Inc., operates a plant at Whiteland, Ind., which manufactures tomato products, chili sauce, and catsup. Wilson also owns Fame Canning Co.,[1] Indianapolis, Ind., which manufactures tomato products including catsup.

The Red Wing Co., Inc., Fredonia, N. Y., controlled in the interest of The Cudahy Packing Co., manufactures among other products catsup, chili sauce, and vinegar.

Merchandising.—Condiments are sold and distributed by the packers to the retailer through their branch houses, hotel supply companies, and car routes and sometimes through wholesale grocers, particularly when salesmen secure orders from retailers who are customers of the wholesale grocers.

In addition to their own manufacture they handle considerable quantities of these products which they buy, store, and sell as competition makes it to their advantage to do. Olives, olive oil, spices, and other condiments are imported, prepared, packed, and distributed.

[1] See Chap. I, sec. 3, for discussion of a change in ownership of this company reported to be in progress.

The following table shows the sales of several condiments by Libby, McNeill & Libby (a Swift concern) for the years 1915 and 1918 with percentages of increase (see Exhibit XVII for sales for other years):

TABLE 49.—*Sales of certain condiments by Libby, McNeill & Libby (a Swift concern), with percentages of increase, 1915 and 1918.*

	1915 (pounds).	1918 (pounds).	Per cent increase 1918 over 1915.
Pickles	22,547,433	37,020,575	64
Olives	1,540,948	15,024,243	875
Catsup	2,479,300	7,682,654	210
Mustard	1,025,480	3,564,168	247
Vinegar	318,330	167,602	[1] 47
Totals	27,911,491	63,459,242	127

[1] Decrease.

Combined with the sales of other items the sales of condiments by Armour and Wilson are shown in Exhibit XVII. For none of the packers other than Swift's Libby are segregated sales figures available.

Unfair and questionable practices.—The packers are versatile in the methods employed to secure control of the markets.

The purchase of canning factories, to remove from the field a competitor who is dependent on such factories for supplies, is at least questionable even though it complies with the strict letter of the law. An example of this occurred in the purchase of the physical properties of Mullen-Blackledge-Nellis Co. at Brazil, Ind., Effingham, Ill., and Paducah, Ky., by Libby, McNeill & Libby, whereby a number of wholesale grocers were deprived of supplies of catsup, chili sauce, and kindred tomato products, especially manufactured for these firms for sale under their own labels. The following letter to one of the former wholesale grocer customers of the factories attempts to smooth over the announcement that a competitor of the customer is to get the latter's supply in the future.

William F. Mullen Albert S. Blackledge Milton C. Nellis

MULLEN-BLACKLEDGE-NELLIS CO.

Packers of

TOMATO PRODUCTS AND FOOD SPECIALTIES

"Worth While"

BRAZIL, IND., *April* 19th, 1918.

HARVEY & EDDY CO.,
Troy, N. Y.

GENTLEMEN: It is a matter of greatest moment and regret to advise that we will be deprived of the usual satisfaction of booking and caring for your valued

order for RUBY Brand Pure Food Tomato Products, the packing of which has been entrusted to us for so many years, having sold our plants to the good house of Libby, McNeill & Libby. We trust that a most suitable and satisfactory source of supply may be found by you, and that our pathways may find another crossing in some future year, and our erstwhile pleasant business associations renewed with even greater mutual satisfaction, should such be even a remote possibility.

We enclose memorandums showing RUBY Labels which we have on hand, and which we will be pleased to ship to you promptly at our last year's cost, which is much lower than the price at which they can be duplicated now. We also enclose samples of labels. Kindly let us hear from you promptly regarding this.

Again thanking you for the abundance of genuine good will and friendship accorded us, and praying your further kind thoughts and favors, we are,

Very truly yours,

MCN/VVT MULLEN–BLACKLEDGE–NELLIS CO.

Misbranding is not to be excused. The following is a case in point in which the Department of Agriculture under the Food and Drugs Act issued notice of Judgment No. 472 against Swift & Co. for misbranding a preparation of cottonseed oil as olive oil, labeled "Specialta Olio di Prima Qualita."

Misbranding of Olive Oil.—On or about June 18, 1909, Swift & Co., a corporation of Chicago, Ill. shipped from the State of Illinois to the State of Massachusetts a consignment of a food product labeled "Specialta Olio di Prima Qualita." Samples from this shipment were procured and analyzed by the Bureau of Chemistry of the United States Department of Agriculture, and as the findings of the analyst and report thereon indicated that the product was misbranded within the meaning of the Food and Drugs Act of June 30, 1906, the Secretary of Agriculture afforded Swift & Co., and the dealer from whom the samples were purchased, opportunities for hearings. As it appeared after hearings held that said shipment was made in violation of the act, the Secretary of Agriculture reported the facts to the Attorney-General, with a statement of the evidence upon which to base a prosecution.

On March 14, 1910, a criminal information was filed in the District Court of the United States for the Northern District of Illinois against the said Swift & Co., charging the above shipment and alleging that the product was misbranded within the meaning of the act, in that the label quoted was false and misleading, because said preparation was not an oil of the first quality, that is to say, an olive oil for table use, but, on the contrary, was an artificial preparation consisting of cotton-seed oil.

On March 19, 1910, the defendant entered a plea of not guilty to the above information, but subsequently withdrew said plea and substituted therefor a plea of nolo contendere. The case came on for hearing on May 24, 1910, and the court imposed a fine of $200 and costs.

This notice is given pursuant to Section 4 of the Food and Drugs Act of June 30, 1906.

JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., *June 25, 1910.*

Wilson's catsup is widely advertised under "Certified Brand" and over the legend "The Wilson Label Protects Your Table."

In 1916 Franklin MacVeagh & Co., of Chicago, issued a pamphlet with the caption "How Club House Catsup is Made," setting forth in comprehensive detail the process and care used in the preparation of this condiment from the raw tomato to the finished commodity ready for distribution to its customers. In the summer of 1918 Wilson & Co., Inc., distributed at a food show at the Sherman Hotel, Chicago, Ill., a pamphlet with the caption "How Certified Catsup is Made," using the identical language in the text employed by MacVeagh & Co., except in a few minor particulars. Comparison in parallel columns below is striking:

How Club House Catsup is Made. From the Vine to the Bottle.	*How Certified Catsup is Made.*
When our packing of "Club House" Catsup is under way again next August at our factory at Clark's Hill, Indiana, the most critical visitor, whether government expert, state factory inspector, customer or consumer, will be welcome as usual, and will be cheerfully shown every nook and corner of the factory and the whole process of manufacture.	When our packing of Certified Catsup is under way at our factory at Whiteland, Indiana, the most critical visitor, whether government expert, state factory inspector, customer or consumer, will be welcome and will be cheerfully shown every nook and corner of the factory and the whole process of manufacture.
If our visitor should come at seven o'clock in the morning, he will find an almost idle and rather empty looking factory, for all of the tomatoes received the day before will have been made into Catsup, the greater part of which will have been labeled and cased and already on its way to market. But everything around the factory and in it will be clean and orderly, because the last important work of each day is to scrub every cement floor and thoroughly clean every machine and kettle for the work of the day following.	If our visitors should come at seven o'clock in the morning, they will find an almost idle and rather empty looking factory, for all of the tomatoes received the day before will have been made into Catsup, the greater part of which will have been labeled and packed, and already on its way to market. But everything around the factory and in it will be clean and orderly, because the last important work of each day is to scrub every cement floor and thoroughly clean every machine and kettle for the work of the day following.
We shall be glad if our visitor is early, because we will want him to see and smell the inside freshness and sweetness of every machine or kettle before any material is put into it; to note that every foot of space used in manufacturing and bottling is protected by screened doors and windows; that the machines and kettles are all connected one to the other by sanitary glass-lined pipes, so that the freshly extracted juice and pulp can pass safely from all danger of con-	We shall be glad if our visitors are early, because we will want them to see and smell the inside freshness and sweetness of every machine or kettle before any material is put into it; to note that every foot of space used in the manufacturing and bottling is protected by screened doors and windows; that the machines and kettles are all connected one to the other by sanitary glass-lined pipes, so that the freshly extracted juice and pulp can pass safely from all danger

tamination and untouched by a single hand through all the process of manufacture from beginning to end. We will also want to show him how carefully the empty bottles are cleaned and how thoroughly they will be sterilized in the dry-room just before they are to be filled.

After the inspection of the building and machinery, we will take the visitor just across the road to one of the tomato fields, where he can observe the results of thorough, painstaking cultivation, and see the early pickers at work, taking the sound, red-ripe tomatoes from the vines and placing them in crates for delivery to the factory.

Coming back to the factory a little before eight o'clock we will find wagon loads of tomatoes being received on the covered cement platform, where each crate is inspected as it comes from the wagon and where none but sound, red-ripe tomatoes are accepted.

The interesting process of manufacture then begins. Immediately after the tomatoes have passed the inspector, they are dumped into a rotary scalding machine. This machine is a long cylinder with one end higher than the other. The tomatoes going into the lower end, gradually work upward through a steady stream of hot water, pure and fresh from our own artesian well, and come out thoroughly cleansed from all sand or other foreign matter. From the "Scalder" the tomatoes are automatically fed into the "Cyclone" Crusher, which is a double jacketed cylinder, the outer cylinder being of solid metal and the inner one a fine sieve, through which all the pulp and juice is forced into the space between the cylinders.

From here the pure pulp and juice with all seeds and peeling removed, is pumped through glass-lined pipes direct to the large copper kettles on the floor above.

At this point the skill of the cook is called forth, and the visitor can stand and watch the large kettles of

of contamination and untouched by a single hand through all the process of manufacture from beginning to end. We will also want to show them how carefully the empty bottles are cleaned and how thoroughly they will be sterilized just before they are to be filled.

After the inspection of the building and machinery, we will take the visitors just across the road to one of the tomato fields, where they can observe the results of thorough, painstaking cultivation, and see the early pickers at work, taking the sound, red-ripe tomatoes from the vines and placing them in crates for delivery to the factory.

Coming back to the factory a little before eight o'clock, we will find wagon loads of tomatoes being received on the covered platform, where each crate is inspected as it comes from the wagon and where none but sound, red-ripe tomatoes are accepted.

Immediately after the tomatoes have passed the inspector, they are dumped into a Sprague scalding machine.

The tomatoes work upward through a steady stream of hot water, pure and fresh from our own wells and come out thoroughly cleansed from all sand or other foreign matter. From the "Scalder" the tomatoes are automatically fed into the "Cyclone" Crusher, which is a double jacketed cylinder, the outer cylinder being of solid metal and the inner one a fine sieve, through which all the pulp and juice is forced into the space between the cylinders.

From here the pure pulp and juice, with all seeds and peeling removed, is pumped through glass-lined pipes direct to the large cooking kettles on the floor above.

At this point the skill of the cook is called forth, and the visitors can stand and watch the large kettles of

red, juicy pulp boil down, and as spices, sugar, vinegar and salt are added to the product, he can smell the goodness of it all as the final stage of cooking is completed. The delicious fragrance of this perfectly blended combination will not be enjoyed by the visitor alone, for the fullness and richness of it will extend a distance of half a mile.

From the kettles the bubbling hot catsup is drawn through glass-lined pipes into a glass-lined receiving tank, from which it immediately passes through another glass-lined pipe to the finishing machine, which is somewhat like the "Cyclone" Crusher and which removes any piece of spice or any other thing that may have passed the Crusher.

From the finishing machine the Catsup, though still hot, passes down through another glass-lined pipe to the Sterilizing Kettle, where it is thoroughly sterilized by greater heat and then goes to the Filling Machine.

From the Filling Machine the hot catsup goes instantly into the thoroughly cleaned and sterilized bottles. The full bottles, then so hot that the operators have to wear gloves, are passed to the Capping machine, which takes care of them as fast as they can come.

After being capped, the bottles are first thoroughly cleansed, then neatly labeled, then cased and put on four-wheeled trucks, by which they are carried at once to the waiting cars alongside the platform, so that within three hours from the time our visitor sees the fresh, red ripe tomatoes being picked in the field, he can see the finished product from these same tomatoes being loaded into the cars.

This is the way "Club House" Tomato Catsup is made. All who taste and use it are delighted with its rich flavor. There is no better catsup made—none better is possible.

red, juicy pulp boil down, and as spices, sugar, vinegar and salt are added to the product, they can smell the goodness of it all as the final state of cooking is completed. The delicious fragrance of this perfectly blended combination will not be enjoyed by the visitors alone, for the fullness and richness of it will extend a distance of a half mile.

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This is the way Wilson's Certified Tomato Catsup is made. All who taste and use it are delighted with its rich flavor. There is no better catsup made—none better is possible.

This catsup has been put out not only under advertising appropriated from that of a competitor, but in containers falsely marked as to the quantity therein.

On March 6, 1919, the manager of the Washington, D. C., branch house of Wilson & Co., Inc., was tried in the police court of the District of Columbia and was convicted and fined for selling this catsup in packages represented to contain five gallons and which were shown to be short. These packages were the original containers as marked and shipped by the Wilson factory.

The prosecution was based on the sale of four cans to an agent of the sealer of weights and measures purchased from the branch house manager. Three of the cans purchased by inspectors of the department of weights and measures of the District of Columbia were found to contain, respectively, 4 gallons, 2 quarts, and 14 ounces; 4 gallons, 2 quarts, and 15 ounces; and 4 gallons and 2 quarts, or a shortage of 4 quarts and 3 ounces in what were represented to be 15 gallons.

The fourth can was not opened and measured, the prosecution presenting it in court and offering to let its case stand or fall on the contents of the unopened can, but the defense failed to take advantage of the offer.

It was shown to the satisfaction of the judge hearing the case that the containers of the catsup would not hold five gallons of liquid as represented in the bill of sale. Each can was packed in a crate on which was stamped "5 gals.—Wilsco Tomato Catsup—Wilson & Co. Washington, D. C."

More than 150 cans of this catsup were sold in Washington, D. C.

Section 7.—Sundries: Peanut butter, coffee, syrups, etc.

PEANUT BUTTER.—The meat packers have recently become important factors in the handling of peanut butter. Swift & Co., through its branch houses and car routes, distributes two brands in three sizes of jars and in tins of 15, 25, and 50 pounds. Both of these brands are manufactured by the E. K. Pond Packing Co., Chicago, Ill., a subsidiary of Swift & Co., which packed in 1916, 612,595 pounds. Wilson & Co., Inc., distributes peanut butter under one of its own brands in tins from 2 pounds to 55 pounds in weight. Morris & Co. carries this commodity under two of its own brands in packages ranging from small jars to casks containing 500 pounds. Armour & Co. sells seven sizes of packages under one of its own brands. The total sales of peanut butter by Armour & Co. during the fiscal year of 1918 amounted to 2,539,181 pounds, for which roundly $575,000 was received. A production of 682,552 pounds was reported for the fiscal year 1916.

COFFEE.—Both Wilson & Co., Inc., and Armour & Co. are handling coffee on a large scale, one of the grocer's most profitable lines. Wilson in its grocery department carries in packages two brands of coffee, each prepared in three styles (steel cut, whole bean, and pulverized) and two brands of blended coffee in 100-pound bags and

drums, both steel cut and whole bean. Wilson is especially pushing its coffee business through all its selling agencies. At the close of its fiscal year, November 2, 1918, at which time the packers aim to carry the smallest stock of goods, the inventory of Wilson & Co., Inc., showed the following quantities on hand: At Chicago, green coffee 654,809 pounds, valued at $90,766.14, and roasted coffee, 64,099 pounds, valued at $11,318.94; at Los Angeles, Calif., 7,853 pounds, valued at $1,625.33; at Kansas City, 5,859 pounds, valued at $1,331.33; and at Oklahoma City, Okla., coffee valued at $5,016.98. These inventories showed some rather wide differences in valuation. Thus "Blue Label" coffee, whole bean, was valued at 20¼ cents a pound in Chicago and 24¾ cents a pound at Oklahoma City, a difference far greater than justified by freight charges. "Red Label" coffee, whole bean, on the contrary, showed a difference of only seven-eighths of a cent, being valued 18 cents in Chicago and 18⅞ cents at Oklahoma City.

Armour & Co. is the only other meat packer who is as yet known to have become interested in this field. The following items from its branch house price list indicate the range of coffees carried:

1-pound Veribest brand, fiber cases.
1-pound Veribest brand, wood cases.
3-pound Veribest brand, fiber cases.
3-pound Veribest brand, wood cases.
50-pound drums, Veribest brand.
100-pound drums, Veribest brand.
1-pound Helmet brand, fiber cases.
1-pound Helmet brand, wood cases.
3-pound Helmet brand, fiber cases.
3-pound Helmet brand, wood cases.
50-pound drums, Helmet brand.
100-pound drums, Helmet brand.
1-pound Shield brand, wood cases.
60-pound paper bags, Glenwood brand.
100-pound paper bags, Glenwood brand.
A. & Co. Blend BBB, 50-pound drums.
A. & Co. Blend BBB, 100-pound drums.
A. & Co. Blend CCC, 50-pound drums.
A. & Co. Blend CCC, 100-pound drums.
A. & Co. Blend DDD, 50-pound drums.
A. & Co. Blend DDD, 100-pound drums,
A. & Co. Blend EEE, 50-pound drums.
A. & Co. Blend EEE, 100-pound drums.

SYRUPS AND MOLASSES.—Morris & Co. and Armour & Co. are actively engaged in the distribution of syrups and molasses. The price list of Morris & Co. carries, in various sizes of containers, the following items:

Pure sugar-cane syrup.
Pure sugar-house molasses.

Baking and table molasses.
Pure New Orleans molasses.
Maple blend syrup, Supreme brand.
Maple blend syrup, Matchless brand.

Armour & Co. handles the same line through its branch houses. The following items are found in Armour's price lists in several sizes of containers:

Corn and cane syrup, Helmet brand.
Old Fashion Louisiana molasses.
Pure Louisiana cane syrup.
Cane and corn syrup, Veribest brand.
Sugar-house molasses, Veribest brand.

OTHER GROCERY SPECIALTIES.—Various other commodities, usually carried by the wholesale grocer and far removed from the products and by-products of the packing plants, are found among the goods of which one or another of the meat packers has undertaken to make himself the wholesale distributor. Thus in Morris & Co.'s price list are listed 5-ounce, 8-ounce, and 14-ounce jars of honey, and in Armour & Co.'s price lists such commodities as cocoas of two brands in 1-pound, 5-pound, and 10-pound cans, in 25-pound pails, in 50-pound and 100-pound drums, and in barrels of 200 pounds; cocoa paste; flavoring extracts of lemon, vanilla, and orange, for grocers and the baking trade in containers of 1-ounce, 2-ounce, and 4-ounce, and in pints, quarts, half gallons, and gallons.

Section 8.—Soda-fountain supplies.

EXTENT OF PACKER DISTRIBUTION.—All five of the meat packers are distributors of beef products, such as extract of beef and beef-bouillon cubes for soda fountain, as well as other uses. Some handle similar commodities such as chicken and clam cubes, celery and tomato bouillon, etc. Wilson & Co., Inc., under the title of "Beverages" in the price list of its grocery department, carries whole red maraschino cherries and the beverages "Phez," "Loju," and "Applju." Cudahy, through the ownership of the Red Wing Co., Inc., Chicago, Ill., is interested in the distribution of grape juice and cider. Armour & Co. owns the Vin Fiz Co., Chicago, Ill., manufacturers of the beverage "Vin Fiz," and also distributes through its department of soda-fountain supplies a full line of goods used by this trade.

Extract of beef and beef bouillon are by-products of packing-house plants, while chicken and vegetable bouillons are related as by-products to the production of various products which are substitutes for meat. But other soda-fountain supplies, especially the extensive line carried by Armour & Co., have only the distant relation that they go to the same trade as do the extract of beef and the beef, chicken, and vegetable bouillons.

The following list of items, taken from the book of Armour & Co.'s accounting department known as "Soda Fountain Supplies Department 12–16 B," shows a line of commodities which rivals in range that of any distributor specializing on the supplying of the soda-fountain trade:

LIST OF SODA-FOUNTAIN SUPPLIES SOLD BY ARMOUR & CO.

Acid foam.
Acid fruit.
Acid phosphate.
Butter-scotch sundae.
Carmel sundae.
Carmel-sugar coloring.
Celery.
Celery for bar use.
Cherry drips.
Cherries, imitation maraschino.
Cherries, imitation crème de menthe flavor.
Chop suey.
Cocoa and cocoa paste.
Concentrated phosphate, celery.
Concentrated phosphate, cherry.
Concentrated phosphate, claret.
Concentrated phosphate, grape.
Concentrated phosphate, lemon.
Concentrated phosphate, orange.
Concentrated phosphate, wild cherry.
Concentrated syrup, apricot.
Concentrated syrup, banana.
Concentrated syrup, birch beer.
Concentrated syrup, blackberry.
Concentrated syrup, blueberry.
Concentrated syrup, caramel.
Concentrated syrup, cherry, red.
Concentrated syrup, cherry, black.
Concentrated syrup, chocolate.
Concentrated syrup, claret.
Concentrated syrup, coffee.
Concentrated syrup, crème de menthe.
Concentrated syrup, cream soda.
Concentrated syrup, ginger.
Concentrated syrup, ginger ale.
Concentrated syrup, grape, Concord.
Concentrated syrup, lemon.
Concentrated syrup, lemonade.
Concentrated syrup, maple flavor.
Concentrated syrup, nectar.
Concentrated syrup, orange.
Concentrated syrup, orangeade.
Concentrated syrup, orange, blood.
Concentrated syrup, peach.
Concentrated syrup, peach bloom.
Concentrated syrup, phosphate, celery.
Concentrated syrup, pineapple.
Concentrated syrup, raspberry, red.
Concentrated syrup, raspberry, black.
Concentrated syrup, root beer.
Concentrated syrup, sarsaparilla.
Concentrated syrup, sherbet.
Concentrated syrup, strawberry.
Concentrated syrup, vanilla.
Crushed apricot.
Crushed blackberry.
Crushed blueberries.
Crushed cherries, red, sour.
Crushed cherries, special.
Crushed cherries, white.
Crushed currants.
Crushed figs.
Crushed gooseberries.
Crushed orange.
Crushed orange, sliced.
Crushed peach.
Crushed peach, sliced.
Crushed pineapple or pineapple cubes or tidbits.
Crushed raspberry.
Crushed strawberries.
Crushed whole red cherries.
Figs, crushed.
Flavoring extract, lemon.
Flavoring extract, maple.
Flavoring extract, orange.
Flavoring extract, pineapple.
Flavoring extract, raspberry.
Flavoring extract, root beer.
Flavoring extract, sarsaparilla.
Flavoring extract, strawberry.
Flavoring extract, vanilla.
Flavoring extract, vanilla and courmarin.
Flavoring extract, wild cherry.
Fruit frappé.
Fruit preserves, apricot.
Fruit preserves, blackberry.
Fruit preserves, blueberry.

Fruit preserves, cherry, red, sour.
Fruit preserves, white, sour, cherry.
Fruit preserves, currants.
Fruit preserves, figs, crushed.
Fruit preserves, figs, whole.
Fruit preserves, gooseberries.
Fruit preserves, marmalade.
Fruit preserves, peach.
Fruit preserves, pineapple.
Fruit preserves, raspberry.
Fruit preserves, strawberry.
Ginger for bar use.
Glacé pineapple.
Grape juice.
Honey sundae.
Hot chocolate paste.
Malted clams.
Malted milk.
Marshmallow topping.
Milkase.
Mineral water salts, Congress.
Mineral water salts, deep rock.
Mineral water salts, kissingen.
Mineral water salts, lithia.
Mineral water salts, seltzer.
Mineral water salts, vichy.
Nut frappé, maple flavor.
Nut frappé, plain.
Nut frappé, syrup.
Orange, lemon, peppermint whip.
Pecan halves in syrup.
Pecan sundae.
Peppermint.
Peppermint for bar use.
Pineapple, I. M. F.
R. P. Sundae.
Soluble color, vegetable, blue.
Soluble color, vegetable, cherry, red.
Soluble color, vegetable, green.
Soluble vegetable color, lemon, yellow.
Soluble color, vegetable, orange.
Soluble color, vegetable, orange, blood.
Soluble color, vegetable, red color.
Soluble color, vegetable, strawberry.
Soluble color, vegetable, violet.
Soluble color, vegetable, yellow red.
Soluble extract, almond.
Soluble extract, apple cider.
Soluble extract, apricot.
Soluble extract, banana.
Soluble extract, birch beer.
Soluble extract, blackberry.
Soluble extract, blood.
Soluble extract, champagne.
Soluble extract, cherry, artificial.
Soluble extract, cherry, wild.
Soluble extract, cherry phosphate.
Soluble extract, chocolate cream.
Soluble extract, club soda.
Soluble extract, coffee extract.
Soluble extract, artificial phosphate and cream.
Soluble phosphate, crème de menthe.
Soluble extract, cream soda.
Soluble extract, ginger ale.
Soluble extract, grape.
Soluble extract, grape phosphate.
Soluble extract, iron, cream.
Soluble extract, lemon.
Soluble extract, lemonade.
Soluble extract, maple.
Soluble extract, mint, cream.
Soluble extract, nectar.
Soluble extract, orange.
Soluble extract, peach.
Soluble extract, peach, artificial.
Soluble extract, peach, cream.
Soluble extract, pear.
Soluble extract, pear, artificial.
Soluble extract, peppermint.
Soluble extract, pepsin soda.
Soluble extract, phosphate.
Soluble extract, pineapple.
Soluble extract, raspberry.
Soluble extract, root beer.
Soluble extract, sarsaparilla.
Soluble extract, sarsaparilla and iron.
Soluble extract, sassafras.
Soluble extract, sherbet.
Soluble extract, strawberry.
Soluble extract, vanilla.
Soluble extract, vanilla courmarin.
Soluble extract, vanilla cream.
Vanilla whip.
Vin fiz.
Walnut halves in syrup.
Walnut sundae, maple flavor.
Wintergreen for bar use.

In addition to these soda-fountain supplies Armour & Co. carries, not under "Soda-Fountain Supplies," but under the title "Extract of Beef," not only various extracts, bouillons, and cubes of beef,

chicken, clam, tomato, and celery, but also a line of soda-fountain equipment, which is still further away from any logical connection with the slaughtering and marketing of beef. In the *Branch House Billing Prices* of Armour & Co. for April 15, 1918, appeared the following:

Nickel-plate heater case.
Nickel-plate electric heater.
Brush-brass electric heater.
Bouillon and chocolate case.
No-break globe case.
Southern special case.
Quick-seller case.
Armco case.
No-break globe electric water heater.
Carnation and rose mugs.
Vigoral dispensing case.
Vigoral combination case.
Mug and spoons case.
Stein and spoon case.
Carnation urn case.
Compartment urn case.
Brush-brass electric heater case.
Two-compartment urn.
Vigoral stem glasses.

The Commission is not in possession of any figures to show the extent or growth of Armour & Co.'s business in this equipment for soda fountains, but found its business in grape juice and soda-fountain supplies to be very large and rapidly increasing. Armour & Co.'s sales of grape juice in 1916 amounted to $554,095.31, while in 1918 they amounted to $1,025,000, an increase of very nearly 100 per cent in two years. The sales credited to soda-fountain supplies in 1916 amounted to $1,103,024.70 and in 1918 had increased to $3,595,000, a growth in this department of over 200 per cent within a period of only two years. If such growth is continued it can be only a short time before the control of Armour & Co. over the distribution of soft drinks will be equal to the control of the packers in the various lines of food supply.

Although some of the supplies, such as grape juice and crushed fruits, are manufactured in its own plants, Armour & Co. is much more important in distributing than in producing and secures most of its supplies from others. In this Armour & Co. has all the advantages which it has in purchasing in other lines and, due to its large command of money and credit, can at once step into the ranks of the heaviest purchasers after deciding to enter a new line.

Thus Armour & Co., while not among the customers of the California Almond Growers' Exchange in 1917, bought 2,095 bags of almonds from them in 1918 and apparently would have taken twice or three times this amount if the Exchange would have accepted its orders. Except for one concern, which bought 3,000 bags in 1917 and 5,000 bags in 1918, no other customer handles so large a quantity as Armour & Co. purchased during its first year.

Armour & Co. is also a large purchaser of both shelled and unshelled walnuts for its grocery business and especially its soda-fountain supply. In 1918 Armour & Co. attempted to buy 25 carloads,

about 300 tons, of unshelled walnuts from the California Walnut Growers' Association. The Association, however, sold the company only 11 carloads. During the same year Armour & Co. offered to buy 50,000 pounds of shelled walnuts, but had not secured them at the time the last reports were received by the Commission. Armour & Co. is naturally regarded by the producers' organizations as a particularly desirable customer, not only because of its excellent credit rating, but because its soda-fountain business permits the acceptance of nuts which, while of sufficiently good quality for this use, are unattractive to the general trade.

MANUFACTURING AND PRODUCING.—None of the meat packers is a factor of dominant importance in the manufacturing and producing of soda-fountain supplies other than extract of beef, beef bouillon, etc., although two of them are somewhat interested in this field. Mr. E. A. Cudahy and his son, E. A. Cudahy, jr., own the Red Wing Co., Inc., Fredonia, N. Y., which manufactures grape juice and cider as well as jellies, jams, preserves, catsup, chili sauce, and vinegar. Armour & Co. owns the Vin Fiz Co., Chicago, manufacturers of the soda-fountain beverage "Vin Fiz," and has grape juice factories at Westfield, N. Y., and Mattowan, Mich., and plants for the manufacture of crushed fruits at Chicago, Ill., Frankfort, Mich., and Ridgely, Md. During the fiscal year 1916, 600,000 pounds of crushed pineapple preserves, manufactured from imported Hawaiian tinned pineapple, and 1,350,000 pounds of imitation maraschino cherries, made from French and Italian cherries imported in brine, were produced by Armour & Co. at Chicago; 692 pounds of crushed cherries, 22,609 pounds of crushed raspberries and 91,223 pounds of crushed peaches were produced at Frankfort, Mich.; and 447,379 pounds of crushed strawberries were produced at the Armour plant at Ridgely, Md. Although not in a dominant position in production, it is evident that Armour & Co. is rapidly becoming of great importance as a manufacturer of grape juice and has already entered the production of crushed fruit necessary for its soda-fountain supplies. Extension in both range and volume of production in these lines is in complete harmony with the policy pursued in other fields.

EXHIBITS.

Exhibit I.

PACKER UNRELATED COMMODITIES.

Classified along the line suggested by the text (pp. 13–15), the commodities (both food and nonfood) unrelated to the main industry of meat packing as either products or by-products which one or more of the Big Five packers either manufacture and sell or buy and sell are in part [1] as follows:

I. Unrelated commodities which compete with the meat packers' products and are manufactured and sold or bought and sold by one or more of the big packers:

Alfalfa meal.
Almonds.
Baked beans.
Bath powder.
Bean flour.
Bolted meal.
Boned chicken.
Boned turkey.
Brazil nuts.
Brewers' flakes.
Brewers' grits.
Brewers' meal.
Buckwheat.
Bulk herring.
Bulk mackerel.
Butter (creamery).
Butter (process).
Butter (renovated).
Butterine.
Canned beans:
    Golden wax.
    Lima.
    Red.
    String.
Canned corn.
Canned fish.
Canned herring.
Canned hominy.
Canned milk:
    Condensed.
    Evaporated.
    Powdered.
Canned oysters.
Canned peas.
Canned salmon.
Canned sardines (in mustard).
Canned sardines (in oil).
Canned shrimp.
Canned succotash.
Canned sweet potatoes.
Canned tuna.
Cheese.
Chicken gizzard linings.
Chicken loaf.
Chicken pate.
Chicken soup.
Chicken tamales.
Chop feed.
Cleanser.
Cleanser powder.
Cleansing compound.
Clipped white oats.
Cocoanuts.
Cocoanut oil.
Commercial fertilizer (mineral).
Compound lard (vegetable).

[1] One of the packers alone advertises a selling line of 3,000 products.

Cooking oil.
Corn grits.
Corn meal.
Corn flour.
Corn and oats, half and half.
Cottonseed meal.
Cottonseed oil.
Cream.
Creamery feed.
Cracked corn.
Crushed white oats.
Cured herring.
Dairy feed.
Deviled chicken.
Deviled turkey.
Dried beans:
- California Lima.
- California small white.
- Red kidney.
- Mexican garbanza.
- Soya.
- Pinto.
- Brown Swede.
- Pink.
- Navy.
- Michigan pea.

Dried brewers' grains.
Dried peas.
Egg albumen.
Eggs (canned).
Eggs (desiccated).
Eggs (frozen).
Eggs (in case):
- Duck.
- Goose.
- Hen.

Eggs (whites).
Eggs (yolks).
Feed barley.
Feed meal.
Feed wheat.
Filberts.
Fish (frozen).
Flour (wheat).
Frozen poultry and game:
- Chickens.
- Ducks.
- Geese.
- Guineas.
- Pigeons.
- Rabbits.
- Squirrels.
- Turkeys.

Grain.
Granulated meal.
Gluten feed.
Ground white oats.
Hominy (samp).
Horse feed.
Kafir-corn milo.
Liquid olive soap.
Luncheon beans.
Macaroni.
Noodles.
Oleomargarine (vegetable).
Olive oil.
Olives (cured)
Olives (ripe).
Olives (stuffed).
Pancake flour.
Peanut butter.
Peanut oil.
Peanuts.
Pecans.
Potted chicken.
Potted and deviled chicken.
Potted turkey.
Raw milk.
Refined cottonseed oil.
Refined oils.
Rice.
Roast fowl.
Rolled oats.
Salad dressing.
Salad oil.
Salmon (barreled).
Salt mackerel.
Sardines (smoked).
Sea foods.
Soya bean oil.
Spaghetti.
Standard middlings.
Standard spring bran.
Toasted corn flakes.
Vegetable shortening.
Vegetable soup.
Vegetable stearin.
Vegetole.
Walnuts.
White corn flour.
White cream meal.
White feed wheat (fancy).
White granulated meal.
White hominy (samp).
White natural oats.
White pearl meal.
White table grits.
Yellow corn, kiln-dried.

II. Unrelated commodities which go to the same markets as do other commodities of the meat packer and are manufactured and sold or bought and sold by one or more of the big packers:

- Alundum cloth.
- Apple butter (in barrels).
- Apple butter (in glasses).
- Apple butter (in pails).
- Apple cider.
- Bath salts.
- Binding and twine.[1]
- Brick.[1]
- Builders' hardware.[1]
- Builders' materials.[1]
- Canned fruit:
  - Apples.
  - Apple butter.
  - Apple sauce.
  - Apricots:
    - In water.
    - Peeled.
    - Sliced.
    - Solid packed.
    - Unpeeled.
  - Blackberries.
  - Blueberries.
  - Cherries:
    - Black.
    - Red sour.
    - Royal Anne.
    - Red pitted.
  - Cherry juice.
  - Cold-pack cherries.
  - Cold-pack peaches.
  - Cold-pack raspberries.
  - Figs.
  - Gooseberries.
  - Grapes.
  - Grapes (white muscat).
  - Jams:
    - Apricot.
    - Blackberry.
    - Blackberry-apple.
    - Cherry-apple.
    - Fig.
    - Grape.
    - Orange marmalade.
    - Orange-apple marmalade.
    - Peach-apple.
    - Pineapple.
    - Plum.
    - Raspberry-apple.
    - Strawberry-apple.
- Canned fruit—Continued.
  - Jellies:
    - Apple.
    - Currant.
    - Grape.
    - Grape-apple.
    - Plum.
    - Raspberry-apple.
    - Strawberry-apple.
  - Loganberries.
  - Oranges.
  - Peach butter.
  - Peaches:
    - Sliced.
    - White cling.
    - Yellow cling.
    - Yellow free.
  - Pears.
  - Pineapples:
    - Broken slices.
    - Grated.
    - Sliced.
  - Plums:
    - Egg.
    - Green gage.
    - Purple.
  - Preserves:
    - Apricot.
    - Blackberry.
    - Cherry (red sour).
    - Currant.
    - Gooseberry.
    - Loganberry.
    - Peach.
    - Pineapple.
    - Plum.
    - Raspberry.
    - Strawberry.
  - Prunes (in syrup).
  - Prunes (in water).
  - Strawberries.
  - Raspberries:
    - Black.
    - Red.
  - Raspberry pulp.
  - Rhubarb.

[1] Sold by Armour Grain Co. at its country elevators.

Canned vegetables:
- Asparagus.
- Asparagus (green).
- Asparagus (white).
- Asparagus tips (green).
- Asparagus tips (white).
- Beets.
- Cabbage.
- Celery.
- Mixed vegetables.
- Okra.
- Pumpkin.
- Sauerkraut.
- Spinach.
- Squash.
- Tomatoes (pulp).
- Tomatoes (solid).
- Vegetable soup.

Catsup.
Celery (powdered).
Cement, lime, plaster.
Cherries (imported).
Cherries (imitation crème de menthe).
Cherries (red crushed).
Cherries (white).
Cherries (whole red, imitation maraschino flavor).
Chili sauce.
Chow chow.
Coal.
Cocoa.
Coffee (bulk).
Coffee (package).
Cold cream.
Coke.
Complexion powder.
Cranberries.
Crème de menthe.
Door and windows.
Dried and evaporated fruits (in box and bulk):
- Apples.
- Apricots.
- Figs.
- Grapes.
- Peaches.
- Pears.
- Prunes:
  - Italian.
  - French.
  - California.
- Raisins.

Face creams.
Face powder.
Fence posts and wire fences.[1]
Foot powder.
Fresh vegetables.
Fuller's earth.
Garlic.
Garnet paper.
Grape compound.
Honey.
Lath.[1]
Lumber.[1]
Machinery.
Minced clams.
Molasses.
Musical instrument accessories.
Mustard and cream.
Orange wood.
Oyster cocktail sauce.
Perfume.
Pickles (cucumbers).
Pimento.
Putty containers.
Relishes.
Roofing.[1]
Sachet lit pomade.
Sand and gravel.[1]
Sandpaper.
Sauce.
Shaving powder.
Shingles.[1]
Smelling salts.
Snuff containers.
Soda-fountain equipment:
- Nickel-plate heater case.
- Nickel-plate electric heater.
- Brush brass electric heater.
- Bouillon and chocolate case.
- No-break globe case.
- Southern special case.
- Quick-seller case.
- Armco case.
- No-break globe electric water heater.
- Carnation and rose mugs.
- Vigoral dispensing case.
- Vigoral combination case.
- Mug and spoons case.
- Stein and spoon case.
- Carnation urn case.
- Compartment urn case.
- Brush brass electric heater case.

[1] Sold by Armour Grain Co. at its country elevators.

Soda-fountain equipment—Continued.
Two-compartment urn.
Vigoral stem glasses.
Soda-fountain supplies:
Acid foam.
Acid fruit.
Acid phosphate.
Butter-scotch sundae.
Carmel sundae.
Caramel-sugar coloring.
Celery.
Celery for bar use.
Cherry drips.
Cherries, imitation maraschino.
Cherries, imitation crème de menthe flavor.
Chop suey.
Coco-cola.
Cocoa and cocoa paste.
Concentrated phosphate, celery.
Concentrated phosphate, cherry.
Concentrated phosphate, claret.
Concentrated phosphate, grape.
Concentrated phosphate, lemon.
Concentrated phosphate, orange.
Concentrated phosphate, wild cherry.
Concentrated syrup, apricot.
Concentrated syrup, banana.
Concentrated syrup, birch beer.
Concentrated syrup, blackberry.
Concentrated syrup, blueberry.
Concentrated syrup, caramel.
Concentrated syrup, cherry, red.
Concentrated syrup, cherry, black
Concentrated syrup, chocolate.
Concentrated syrup, claret.
Concentrated syrup, coffee.
Concentrated syrup crème de menthe.
Concentrated syrup, cream soda.
Concentrated syrup, ginger.
Concentrated syrup, ginger ale.
Concentrated syrup grape, Concord.
Concentrated syrup, lemon.
Concentrated syrup, lemonade.
Concentrated syrup, maple flavor.
Concentrated syrup, nectar.
Concentrated syrup, orange.
Concentrated syrup, orangeade.
Concentrated syrup, orange, blood.
Concentrated syrup, peach.

Soda-fountain supplies—Continued.
Concentrated syrup, peach bloom.
Concentrated syrup, phosphate, celery.
Concentrated syrup, pineapple.
Concentrated syrup, raspberry, red.
Concentrated syrup, raspberry, black.
Concentrated syrup, root beer.
Concentrated syrup, sarsaparilla.
Concentrated syrup, sherbet.
Concentrated syrup, strawberry.
Concentrated syrup, vanilla.
Crushed apricot.
Crushed blackberry.
Crushed blueberries.
Crushed cherries, red, sour.
Crushed cherries, special.
Crushed cherries, white.
Crushed currants.
Crushed figs.
Crushed gooseberries.
Crushed orange.
Crushed orange, sliced.
Crushed peach.
Crushed peach, sliced.
Crushed pineapple or pineapple cubes or tidbits.
Crushed raspberry.
Crushed strawberries.
Crushed whole red cherries.
Figs, crushed.
Flavoring extracts, lemon.
Flavoring extracts, maple.
Flavoring extracts, orange.
Flavoring extracts, pineapple.
Flavoring extracts, raspberry.
Flavoring extracts, root beer.
Flavoring extracts, sarsaparilla.
Flavoring extracts, strawberry.
Flavoring extracts, vanilla.
Flavoring extracts, vanilla and courmarin.
Flavoring extracts, wild cherry.
Fruit frappé.
Fruit preserves, apricot.
Fruit preserves, blackberry.
Fruit preserves, blueberry.
Fruit preserves, cherry, red, sour.
Fruit preserves, white sour cherry.
Fruit preserves, currants.
Fruit preserves, figs, crushed.
Fruit preserves, figs, whole.

Soda-fountain supplies—Continued.
Fruit preserves, gooseberries.
Fruit preserves, marmalade.
Fruit preserves, peach.
Fruit preserves, pineapple.
Fruit preserves, raspberry.
Fruit preserves, strawberry.
Ginger ale.
Ginger for bar use.
Glacé pineapple.
Grape juice.
Honey sundae.
Hot chocolate paste.
Malted clams.
Malted milk.
Marshmallow topping.
Milkase.
Mineral water salts, Congress.
Mineral water salts, deep rock.
Mineral water salts, kissingen.
Mineral water salts, lithia.
Mineral water salts, seltzer.
Mineral water salts, vichy.
Nut frappé, maple flavor.
Nut frappé, plain.
Nut frappé, syrup.
Nuts (in shell).
Orange, lemon, peppermint whip.
Pecan halves in syrup.
Pecan sundae.
Peppermint.
Peppermint for bar use.
Pineapple, I. M. F.
Root beer.
R. P. sundae.
Soluble color, vegetable, blue.
Soluble color, vegetable, cherry-red.
Soluble color, vegetable, green.
Soluble color, vegetable, lemon-yellow.
Soluble color, vegetable, orange.
Soluble color, vegetable, orange-blood.
Soluble color, vegetable, red-color.
Soluble color, vegetable, strawberry.
Soluble color, vegetable, violet.
Soluable color vegetable, yellow-red.
Soluble extract, almond.
Soluble extract, apple cider.
Soluble extract, apricot.
Soluble extract, banana.

Soda-fountain supplies—Continued.
Soluble extract, birch beer.
Soluble extract, blackberry.
Soluble extract, blood.
Soluble extract, champagne.
Soluble extract, cherry, artifical.
Soluble extract, cherry, wild.
Soluble extract, cherry, phosphate.
Soluble extract, chocolate-cream.
Soluble extract, club soda.
Soluble extract, coffee extract.
Soluble extract, artificial phosphate and cream.
Soluble phosphate, crème de meuthe.
Soluble extract, cream soda.
Soluble extract, ginger ale.
Soluble extract, grape.
Soluble extract, grape phosphate.
Soluble extract, iron cream.
Soluble extract, lemon.
Soluble extract, lemonade.
Soluble extract, maple.
Soluble extract, mint cream.
Soluble extract, nectar.
Soluble extract, orange.
Soluble extract, peach.
Soluble extract, peach, artificial.
Soluble extract, peach cream.
Soluble extract, pear.
Soluble extract, pear artificial.
Soluble extract, peppermint.
Soluble extract, pepsin soda.
Soluble extract, phosphate.
Soluble extract, pineapple.
Soluble extract, raspberry.
Soluble extract, root beer.
Soluble extract, sarsaparilla.
Soluble extract, sarsaparilla and iron.
Soluble extract, sassafrass.
Soluble extract, sherbet.
Soluble extract, strawberry.
Soluble extract, vanilla.
Soluble extract, vanilla courmarin.
Soluble extract, vanilla cream.
Vanilla whip.
Vin Fiz.
Walnut halves in syrup.
Walnut sundae, maple flavor.
Wintergreen for bar use.
Structural steel.
Syrup (cane).
Syrup (corn).

Syrup (maple blend).
Tabasco sauce.
Table sauce.
Talcum powder.
Tile.[1]
Toilet articles.
Toilet waters.
Tomato purée.
Tomato relish.
Tooth paste.
Vinegar pickled goods.
Washing powder
Washing soda.
Witch-hazel and almond cream.
Worcestershire sauce.

III. Unrelated commodities which are used in the manufacture or handling of the meat packers' products and are manufactured and sold or bought and sold by one or more of the big packers:

Allspice.
Ashton salt sax.
Artificial ice.
Babbitt (used by railroads in axle boxes).
Bar iron.
Barrels.
Bearings for railroad cars, etc.
Boxes.
Bumping posts for railroads.
Cans and can containers.
Car repair parts.
Casks.
Castings and appliances for use in manufacturing refrigerator cars.
Castings for railroad use.
Cloves.
Cinnamon.
Condiments.
Cooperage.
Crude cotton oil.
Cutlery, steel lengths.
Dry kelp.
Ginger.
Heavy paper.
Horse-radish.
Kegs.
Labels.
Lemon extract.
Meat hooks.
Mechanical supplies.
Mustard.
Mustard seed.
Nitrate of soda.
Nutmeg (ground).
Orange extract.
Packing-house machinery.
Pails.
Paper-box board.
Paper containers.
Paper.
Pepper (ground).
Pepper (red).
Pepper (white).
Pepper (whole).
Phosphate rock.
Pitting and fruit-handling machinery.
Potash.
Roots and herbs.
Sage.
Salt.
Sausage containers.
Soda ash.
Stopper coverings.
Sulphuric acid.
Tablets—tubes.
Tanks used in refineries.
Tanks used in refrigerator cars.
Tanning extract.
Tins.
Tubs.
Vanilla extract.
Vinegar.

The above lists, however, can by no means be regarded as complete. In its yearbook for 1917 (p. 18) Armour & Co. advertised that it was carrying a line of 3,000 products. Allowing by the most liberal estimate possible for products and by-products of the packing industry, including varieties and brands of these, the unrelated products in which this company dealt must have run up into the hundreds. Their number can not be less to-day. Not only are all the more profitable lines of groceries, canned foods, provisions, and produce comprised within these lines but many nonfood lines.

[1] Sold by Armour Grain Co. at its country elevators.

EXHIBIT II.

ARMOUR'S SALES, IN VALUE, OF DRESSED POULTRY, EGGS, BUTTER, AND CHEESE, 1915–1918.

A.—YEAR ENDING OCT. 31, 1915.

[Classification of sales is Armour's.]

	Poultry.	Eggs.	Butter.	Cheese.	Totals.
Packing house direct	$22,650.83	$29,896.47	$62,938.91	$449,735.47	.....
Export	186,374.60	240,923.73	14,616.49	155,683 24	.....
Car route	11,624.22	149,862.45	104,294.43	503,392.34	.....
Total	220,649.65	420,682.65	181,849.83	1,108,811.05	$1,931,993 18
Branch house	3,000,474.72	6,226,792.88	6,438,784.37	3,900,372.20	19,566,424 17
Springfield, Mo	132,889.95	10,528.43	1,433.77	.....	.....
Clinton, Mo	88,023.32	13,643.97	5,523.20	.....	.....
Boonville, Mo	12,584.50	1,905.57	.....	.....	.....
Kentucky Cold Storage	3,567.81	76.45	18,633.39	96,256.24	.....
Neenah Cheese & Cold Storage Co.	.....	.....	.....	1,804,324.46	.....
C. E. Blodgett Cheese, Butter & Egg Co	.....	.....	.....	692,480.77	.....
Aaron Poultry & Egg Co	1,743,202.80	858,592.42	.....	.....	.....
Eau Claire Creamery Co	.....	.....	174,014.68	.....	.....
Total auxiliaries	1,980,268.38	884,746.84	199,605.04	2,593,061.47	5,657,681.73
Grand total	5,201,392.75	7,532,222.37	6,820,239.24	7,602,244.72	27,156,099.08

B.—YEAR ENDING OCT. 28, 1916.

[Classification of sales is Armour's.]

	Poultry.	Eggs.	Butter.	Cheese	Totals.
Packing house direct	$43,964.22	$91,615.54	$286,726.79	$151,108.97	$573,415.52
Export	133,792.69	292,437.45	9,981.23	282,891.20	719,102.57
Car route	24,594.51	148,322.31	137,572.44	681,629.87	992,119.13
Total	202,351.42	532,375.30	434,280.46	1,115,630.04	2,284,637.22
Branch houses	2,953,264.81	7,234,908.58	7,663,231.02	5,083,928.27	22,935,332.68
Greenwich Street	1,266,821.74	533,604.46	1,151,952.46	292,894.62	3,245,273.28
Total	4,220,086.55	7,768,513.04	8,815,183.48	5,376,822.89	26,180,605.96
Owosso	762.14	17,118.51	12,492.37	344.22	30,717.24
Springfield	62,171.69	8,645.31	7,368.85	.....	78,185.85
Clinton	74,367.02	5,500.54	4,866.63	.....	84,734.19
Boonville	25,334.73	4,506.20	479.56	.....	30,320.49
Kentucky Creameries Co	.....	.....	60,540.36	.....	60,540.36
Neenah Cheese & Cold Storage Co.	.....	.....	.....	3,558,675.65	3,558,675.65
C. E. Blodgett Cheese, Butter, & Egg Co	.....	.....	.....	871,325.06	871,325.06
Aaron Poultry & Egg Co	1,680,432.17	601,402.34	75,462.34	.....	2,357,296.85
Eau Claire Creamery Co	.....	.....	226,021.47	.....	226,021.47
Denison	626.01	5,477.44	2,771.55	.....	8,875.00
Total	1,843,693.76	642,650.34	390,003.13	4,430,344.93	7,306,692.16
Grand total	6,266,131.73	8,943,538.68	9,639,467.07	10,922,797.86	35,771,935.34

C.—YEAR ENDING OCT. 27, 1917.

[Classification of sales is Armour's.]

	Poultry.	Eggs.	Butter.	Cheese.	Totals.
Packing house direct	$87,227.18	$318,222.47	$379,330.55	$530,533.22	$1,315,313.42
Foreign and domestic consignment	197,596.56	90,691.24	95,997.25	163,013.84	547,298.89
Car route	24,529.52	193,631.51	206,113.34	835,831.60	1,260,105.97
Total	309,353.26	602,545.22	681,441.14	1,529,378.66	3,122,718.28
Friedman Manufacturing Co.		115,822.02	708,368.62	146,104.15	970,294.79
Branch houses	3,162,180.70	10,888,522.77	11,489,302.83	6,537,884.64	32,077,890.94
Greenwich Street	1,287,669.74	553,813.58	1,710,428.07	214,456.84	3,766,368.23
Cortland Beef Co.	4,030.18	113,374.68	142,545.23	136,152.56	396,102.65
H. L. Brown Co., Boston	2,466.91	144,710.91	335,746.28	23,727.73	506,651.83
H. L. Brown Co., Providence	389.90	126,235.41	141,224.02	25,621.69	293,471.02
Total	4,456,737.43	11,826,657.35	13,819,246.43	6,937,843.46	37,040,484.67
Louisville	80,101.04	2,595.00	6,080.90	20,722.54	109,499.48
Owosso	3,333.26	21,274.63	9,693.19	1,429.53	35,730.61
Rochester	367.32	2,361.32	83,573.84		86,302.48
Springfield	74,634.26	4,525.12	28.80		79,188.18
Clinton	75,939.82	10,879.41	831.20		87,650.43
Boonville	19,477.46	4,728.45	220.49		24,426.40
Denison	3,586.76	2,395.02	4,701.74		10,683.52
Neenah Cheese & Cold Storage Co.				3,104,354.44	3,104,354.44
Mankato	16.42	.75			17.17
Total	257,456.34	48,759.70	105,130.16	3,126,506.51	3,537,852.71
Grand total	5,023,547.03	12,593,784.29	15,314,186.35	11,739,832.78	44,671,350.45
Subsidiary corporations:					
Aaron Poultry & Egg Co.	882,647.57	283,467.34	47,394.22		1,213,509.13
C. E. Blodgett Cheese, Butter & Egg Co.		20,672.76		1,759,466.00	1,780,138.76
A. S. Kininmonth Produce Co.	103,588.07	373,701.36	487,783.20		965,072.63
Eau Claire Creamery Co.			179,585.05	35,938.16	215,523.21
Harold L. Brown Co., Inc.	76,899.16	1,020,568.16	1,223,663.73	1,175,588.46	3,496,719.51
Total subsidiaries	1,063,134.80	1,698,409.62	1,938,426.20	2,970,992.62	7,670,963.24
Grand total, including subsidiaries	6,086,681.83	14,292,193.91	17,252,612.55	14,710,825.40	52,342,313.69

D.—YEAR ENDING NOV. 2, 1918.

[Classification of sales is Armour's.]

	Poultry.	Eggs.	Butter.	Cheese.	Totals.
Packing house sales direct	$799,353.47	$655,204.30	$837,065.22	$3,029,709.67	
Buying houses	108,689.93	56,492.30	101,345.82	1,203,780.13	
Branch houses	6,189,354.49	20,298,897.00	19,325,477.88	14,176,927.92	
Total Armour sales to trade	7,097,397.89	21,010,593.60	20,263,888.92	18,410,417.72	$66,782,298.13
Subsidiary corporations	1,597,390.11	3,532,372.81	3,597,933.43	2,343,273.74	11,070,970.09
Grand total	8,694,788.00	24,542,966.41	23,861,822.35	20,753,691.46	77,853,268.22

EXHIBIT III.

NUMBER OF PRINCIPAL MARKETING AGENCIES, BY CITIES, OF THE FIVE LARGEST PACKERS AND THEIR CONTROLLED COMPANIES, AS FAR AS ASCERTAINED, INCLUDING DOMESTIC BRANCH HOUSES, SUBSTOCKS, STORAGE AND DELIVERIES, CONSIGNEES, FOREIGN BRANCH HOUSES, AND FOREIGN SELLING COMPANIES.

[For Big Five Companies producing foods or specializing in the handling of certain foods see Exhibit IV.]

A.—DOMESTIC BRANCH HOUSES.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Total	1,188	415	370	170	120	113
Aberdeen, S. C.	1		1			
Abilene, Tex.	1	1				
Akron, Ohio	2		1		1	
Albany, Ala.	1	1				
Albany, Ga.	1		1			
Albany, N. Y.	4	[1]1	1	1	1	
Albuquerque, N. Mex.	2	[2]1	1			
Alexandria, La.	3	[2]1	1			1
Alexandria, Va.	2	1	1			
Allentown, Pa.	2	1			1	
Altoona, Pa.	2		1	1		
Amarillo, Tex.	2	1	1			
Amsterdam, N. Y.	2		1		1	
Anderson, S. C.	1			1		
Ann Arbor, Mich.	1	[3]1				
Anniston, Ala.	2	1	1			
Ardmore, Okla.	1	1				
Asbury Park, N. J.	1	1				
Ashville, N. C.	2	1	1			
Ashland, Oreg.	1	1				
Ashland, Wis.	2	1	1			
Astoria, Oreg.	1	[4]1				
Atlanta, Ga.	7	[5]2	[6]2	1	1	1
Athens, Ga.	1		1			
Atlantic City, N. J.	2				1	1
Auburn, N. Y.	2		1	1		
Augusta, Ga.	4	1	1	1	1	
Augusta, Me.	2	[7]2				
Aurora, Ill.	2		1			1
Austin, Tex.	1	1				
Baltimore, Md.	7	[8]3	[9]2	1	1	
Bangor, Me.	4	[7]2	1		1	
Batavia, N. Y.	1		1			
Bath, Me.	1	1				
Baton Rouge, La.	2	[2]1	1			
Battle Creek, Mich.	1		1			
Bayonne, N. J.	2	1		1		
Beaumont, Tex.	4	1	1	1	1	
Beaver Falls, Pa.	2		1			1
Bemidji, Minn.	1		1			
Berlin, N. H.	2	1	1			
Bessemer, Ala.	1		1			
Biddeford, Me.	2	1	1			

[1] Operated under the name of Swift & Co., Inc., all the stock of which is owned by Swift & Co.
[2] Operated under the name of Swift & Co., Ltd., all the stock of which is owned by Swift & Co.
[3] Operated under the name of Hammond Beef Co. (Mich.), all the stock of which is owned by Swift & Co.
[4] Formerly operated by the Union Meat Co., a Swift interest. Swift & Co., in 1919, acquired 100 per cent control of this company.
[5] Including one operated by the Atlanta Supply Co., controlled through Libby, McNeill & Libby (Maine), 99.8 per cent of the stock of which is owned by Swift & Co., and is understood to have been distributed recently pro rata to the stockholders of Swift & Co.
[6] Including one operated under the name of Friedman Manufacturing Co., 75 per cent of the stock of which is owned by Armour & Co., branch discontinued in 1917.
[7] Including one controlled by John P. Squire & Co., 93 per cent of the stock of which is owned by the Swift family interests.
[8] Including one operated under the name of Libby, McNeill & Libby.
[9] Including one operated under the name of the Armour Packing Co., all the stock of which is owned by Armour & Co.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

A.—DOMESTIC BRANCH HOUSES—Continued.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Billings, Mont.	2	1	1	.....	.....	.....
Binghamton, N. Y.	2	.....	1	.....	1	.....
Birmingham, Ala.	6	[1] 2	1	1	1	1
Bloomington, Ill.	2	.....	1	.....	.....	1
Bluefield, W. Va.	2	.....	1	[2] 1	.....	.....
Blue Island, Ill.	1	.....	.....	1	.....	.....
Boise, Idaho.	2	1	.....	.....	.....	1
Boston, Mass.	45	[3] 13	[4] 7	[5] 14	[6] 5	6
Braddock, Pa.	2	.....	.....	1	.....	1
Bradford, Pa.	2	1	.....	1	.....	.....
Brainerd, Minn.	1	1	.....	.....	.....	.....
Brattleboro, Vt.	1	1	.....	.....	.....	.....
Bridgeport, Conn.	3	1	.....	1	.....	1
Bridgeton, N. J.	1	1	.....	.....	.....	.....
Bristol, Tenn.	1	.....	1	.....	.....	.....
Brockton, Mass.	3	1	.....	1	.....	1
Brooklyn, N. Y.	16	[7] 6	4	[8] 3	3	.....
Brownsville, Tex.	2	1	1	.....	.....	.....
Brownwood, Tex.	2	1	1	.....	.....	.....
Buffalo, N. Y.	3	[9] 2	1	.....	.....	.....
Burlington, Vt.	3	1	1	.....	1	.....
Butte, Mont.	5	1	1	.....	1	2
Cairo, Ill.	1	.....	1	.....	.....	.....
Calais, Me.	1	.....	1	.....	.....	.....
Calumet, Mich.	1	[10] 1	.....	.....	.....	.....
Cambridge, Mass.	1	.....	.....	.....	1	.....
Canton, Ohio.	1	.....	1	.....	.....	.....
Carihou, Me.	1	.....	.....	.....	1	.....
Cedar Rapids, Iowa.	2	1	1	.....	.....	.....
Charleroi, Pa.	1	.....	.....	.....	.....	1
Charleston, S. C.	3	1	1	1	.....	.....
Charleston, W. Va.	4	1	1	1	1	.....
Charlotte, N. C.	3	1	1	.....	.....	1
Charlottesville, Va.	1	1	.....	.....	.....	.....
Chattanooga, Tenn.	4	1	1	1	.....	1
Chester, Pa.	2	1	1	.....	.....	.....
Chicago, Ill.	49	[11] 18	[12] 13	[13] 11	[14] 5	2

[1] Including one operated under the name of Libby, McNeill & Libby.

[2] Operated by the Bluefield Provision & Produce Co., which is controlled by Morris & Co., through ownership of 375 out of a total of 800 shares; not acquired till 1917.

[3] Operated under the following names: Swift Beef Co., G. F. Swift & Co., E. C. Swift & Co., N. E. Hollis & Co., and Clinton Market & Provision Co., trade names of Swift Beef Co., of whose stock Swift & Co. owns 66⅔ per cent; John P. Squire & Co., New England Dressed Meat & Wool Co., and 2 branches of the North Packing & Provision Co. (1 operated under the name of the Chicago Provision Co.), in which the Swift family have a majority control; the George E. Skinner Co., in which Swift & Co. owns 42 per cent of the voting stock; the Vermont Supply Co., controlled through the G. H. Hammond Co., the entire stock of which is owned by Swift & Co.; the Sturtevant & Haley Beef & Supply Co., all the stock of which is owned by Swift & Co., and Libby, McNeill & Libby.

[4] Including one operated under the name of the Hyde Wheeler Co., all of the stock which is owned by Armour & Co.; one operated under the name of the T. H. Wheeler Co., 97 per cent of the stock of which is owned by Armour & Co.; one operated under the name of the New England Beef Co., a trade name of Armour & Co.; and one operated by Friedman Manufacturing Co., branch reported discontinued November, 1916.

[5] Including one operated under the name of Corwin-Wilde Co. and one operated under the name of Donnelly & Co., Inc., all the stock in both these companies being owned by Morris & Co.; including also six branches operated by Chamberlain & Co., Inc., and four by the John N. Ladensack Co., practically all the stock of which was owned by Chamberlain & Co., Inc., with which it was consolidated in 1917.

[6] Including one operated under the name of the Standard Beef Co., all the stock of which is owned by Wilson & Co., Inc., and one operated under the name of the Sinclair Sales Co., all the stock, excepting 3 directors' qualifying shares, being owned by T. M. Sinclair & Co., Ltd. All the common stock of the latter company, except 7 directors' qualifying shares, is owned by the Central Products Corporation, in which Wilson & Co., Inc., owns 100 per cent.

[7] Including one operated under the name of the Wallabout Market Packing Co., a trade name of Swift & Co.

[8] Including one operated under the name of the Brooklyn Beef & Provision Co., all the stock of which is owned by Morris & Co.

[9] Including one operated by Swift & Co., Inc., and one operated by Libby, McNeill & Libby.

[10] Operated by the Plankinton Packing Co., all the stock of which is owned by Swift & Co.

[11] Including one operated under the name of the G. H. Hammond Co., all the stock of which is owned by Swift & Co.; two operated by Libby, McNeill & Libby; one operated by the American Milk Co., a subsidiary of Libby, McNeill & Libby; and one operated by the Fulton Beef Co., also a subsidiary of Libby, McNeill & Libby.

[12] Including the retail market at the plant, but excluding the Anglo-American Provision Co., through which Armour & Co.'s board of trade transactions are made.

[13] Including one operated under the trade name of S. Hess, one under the trade name of Hess & Co., and one under the name of Glenn & Anderson Co., in which Morris & Co. has a majority control.

[14] Not including the Wilson Commission Co., the Drexel Packing Co., and Empire Provision & Produce Co. (the latter reported inactive since June 1, 1917), all the stock of each being owned by Wilson & Co., Inc.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

A.—DOMESTIC BRANCH HOUSES—Continued.

City.	Total b'g packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Cincinnati, Ohio	1	1				
Clarksdale, Miss	1		1			
Cleveland, Ohio	5	2	1	1	1	
Clinton, Iowa	2	1				1
Clinton, Mass	1	1				
Coeur d'Alene, Idaho	1		[1] 1			
Cohoes, N. Y	2	1	1			
Colorado Springs, Colo	2	1	1			
Columbia, S. C	5	1	[2] 2	1	1	
Columbus, Ga	4	1	1	1	1	
Columbus, Ohio	3		1	1	1	
Concord, N. H	2	1			1	
Cordele, Ga	1		1			
Corpus Christi, Tex	3	1	1		1	
Corsicana, Tex	2		1	1		
Corning, N. Y	1	1				
Cortland, N. Y	1		1			
Cresson, Pa	1					1
Cumberland, Md	2	1	[3] 1			
Dallas, Tex	4	1	1		1	1
Danbury, Conn	1	1				
Danville, Ill	2		1	1		
Danville, Va	1	1				
Davenport, Iowa	2		1			1
Dayton, Ohio	1			1		
Deadwood, S. Dak	2		1			1
Decatur, Ill	2		1	1		
Denison, Tex	1	1				
Denver, Colo	5	[4] 2	[5] 2	[6] 1		
Derby, Conn	1		1			
Des Moines, Iowa	5	1	1	1	[7] 1	1
Detroit, Mich	7	[4] 3	1	1	1	[8] 1
Donaldsonville, La	1	[9] 1				
Dover, N. H	2	1		[10] 1		
Dover, N. J	1	1				
Dubois, Pa	1				1	
Dubuque, Iowa	2	1	1			
Duluth, Minn	6	1	1	1	1	2
Durham, N. C	1	1				
East Liverpool, Ohio	1		1			
Easton, Pa	1	1				
East Orange, N. J	2		1	[11] 1		
East St. Louis, Ill	[12] 3	[13] 1	1	1		
Elizabeth, N. J	3	1	1	1		
Elkhorn, W. Va	1	1				
Elmira, N. Y	3	[14] 1	1	1		
El Paso, Tex	4	1	1	1	1	
Erie, Pa	3	1	[15] 2			
Eufaula, Ala	1	1				
Evanston, Ill	1		1			
Fall River, Mass	5	1	1	1	1	1
Fargo, N. Dak	2	1	1			
Faust, N. Y	1		1			
Fayetteville, N. C	1	1				
Fitchburg, Mass	3	[16] 2	1			
Florence, S. C	1	1				

[1] Not formally taken over from the E. H. Stanton Co. till the spring of 1917.
[2] Including one operated under the name of the Friedman Manufacturing Co., 75 per cent of the stock of which is owned by Armour & Co.; branch discontinued in 1917.
[3] Operated by the Pittsburg Provision & Packing Co., in which the Armour-Allerton interests own 95 per cent.
[4] Including one operated under the name of Libby, McNeill & Libby.
[5] Including one operated by the Colorado Packing & Provision Co., all the stock of which is owned by Armour & Co.
[6] The Lindner Packing & Provision Co., in which Morris & Co. has 50 per cent interest; not acquired till 1917.
[7] Operated by T. M. Sinclair & Co., Ltd., all the common stock except seven directors' qualifying shares being owned by the Central Products Corporation, in which Wilson & Co., Inc., owns 100 per cent.
[8] Operated by the Nagle Packing Co., in which The Cudahy Packing Co. owns 55 per cent of the stock.
[9] Operated under the name of Swift & Co., Ltd., all the stock of which is owned by Swift & Co.
[10] J. M. Wilson & Co.
[11] Operated by the Condit Beef & Provision Co., all the stock of which is owned by Morris & Co.
[12] Including National City, Ill.
[13] The packing-house market.
[14] Operated under the name of Swift & Co., Inc., all the stock of which is owned by Swift & Co.
[15] Including one operated by the Pittsburg Provision & Packing Co.
[16] Including one operated by John P. Squire & Co., in which the Swift family owns 93 per cent of the stock.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

A.—DOMESTIC BRANCH HOUSES—Continued.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Flushing, N. Y.	1	[1] 1				
Forest Park, Ill.	1					1
Fort Smith, Ark.	2	1	1			
Fort Wayne, Ind.	1	1				
Fort Worth, Tex.	2	[2] 1	1			
Framingham, Mass.	1		1			
Fresno, Calif.	2	[3] 1				1
Gadsden, Ala.	1	1				
Galesburg, Ill.	3	1	1		1	
Galveston, Tex.	3	1	1	1		
Gardiner, Me.	1		1			
Gardner, Mass.	1	1				
Gary, Ind.	1		1			
Geneva, N. Y.	2	[1] 1	1			
Glen Falls, N. Y.	2	[1] 1	1			
Gloucester, Mass.	1	1				
Gloversville, N. Y.	1		1			
Grafton, W. Va.	1		1			
Grand Forks, N. Dak.	2	1	1			
Grand Junction, Colo.	2	1	1			
Grand Rapids, Mich.	3	1		1	1	
Great Falls, Mont.	2	1	1			
Greenfield, Mass.	1	[4] 1				
Greensboro, N. C.	1		1			
Greensburg, Pa.	2		1		1	
Greenville, Miss.	2	1	1			
Greenville, S. C.	4	1	1	1		1
Greenville, Tex.	2	[5] 1	1			
Greenwood, Miss.	1	1				
Gulfport, Miss.	1		1			
Hackensack, N. J.	1		1			
Hammond, Ind.	1	1				
Hancock, Mich.	1		1			
Harrisburg, Pa.	2	1			1	
Hartford, Conn.	6	[6] 3	1	1		1
Hattiesburg, Miss.	2	1	1			
Haverhill, Mass.	1				1	
Haverstraw, N. Y.	1	1				
Hazelton, Pa.	3	1	1		1	
Helena, Ark.	2		1	[7] 1		
Hinton, W. Va.	2	1			1	
Hoboken, N. J.	2	1				[6] 1
Holyoke, Mass.	6	[6] 3	1	1		1
Homestead, Pa.	1			1		
Hoquiam, Wash.	1	[10] 1				
Hornell, N. Y.	1	[1] 1				
Hot Springs, Ark.	2		1		1	
Houghton, Mich.	2			1		1
Houlton, Me.	2	1	1			
Houston, Tex.	4	1	1	1	1	
Hudson, N. Y.	1			1		
Huntington, W. Va.	1		1			
Huntsville, Ala.	2	1	1			
Indianapolis, Ind.	3	[11] 2		1		
Iron Mountain, Mich.	1			1		
Ironwood, Mich.	2		1			1
Ishpeming, Mich.	3	1		1		1

[1] Operated under the name of Swift & Co., Inc.
[2] The packing-house market.
[3] Operated by the Western Meat Co., in which each of the Big Five has an interest. Swift & Co. owns 44.5 per cent of the stock.
[4] Operated under the name of Swift Coates Co., in which Swift & Co. owns 50 per cent of the stock, and proxies for the remaining 50 per cent are given to a Swift agent by the Coates interests.
[5] Operated in 1916, but reported closed June 30, 1917.
[6] Including one operated under the name of H. L. Handy Co., in which Swift & Co. owns 60 per cent of the stock, and one operated under the name of Libby, McNeill & Libby.
[7] Operated under the name of the Morris Packing Co. (Maine), all the stock of which is owned by Morris & Co.
[8] Operated by the Nagle Packing Co., in which The Cudahy Packing Co. owns 55 per cent of the stock.
[9] Including one operated by John P. Squire & Co., and one by Springfield Provision Co., in which Swift family interests own 75 per cent of the stock.
[10] Formerly operated by the Union Meat Co., a Swift interest. Swift & Co., in 1919 acquired 100 per cent control of this company.
[11] Including one operated under the name of Libby, McNeill & Libby.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

A.—DOMESTIC BRANCH HOUSES—Continued.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Ithaca, N. Y.	1	[1] 1				
Jackson, Mich.	1		1			
Jackson, Miss.	2	1	1			
Jackson, Tenn.	1		1			
Jacksonville, Fla.	7	[2] 2	[2] 2	1	1	1
Jacksonville, Ill.	1	1				
Jamaica, N. Y.	3		1	1	1	
Jamestown, N. Y.	1	[1] 1				
Jermyn, Pa.	1			1		
Jersey City, N. J.	7	1	3		1	[4] 2
Johnstown, Pa.	2		[5] 2			
Joliet, Ill.	3	1	1		1	
Kalamazoo, Mich.	1		1			
Kansas City, Kans.	7	[6] 1	[7] 3	1	1	1
Kansas City, Mo.	2	[8] 1			1	
Keene, N. H.	1	1				
Keokuk, Iowa.	1		1			
Key West, Fla.	1		1			
Kingston, N. Y.	2		1	1		
Knoxville, Tenn.	2	1	1			
Laconia, N. H.	1	1				
La Crosse, Wis.	2	1	1			
Lake Charles, La.	1		1			
Lake Providence, La.	1		1			
La Salle, Ill.	1		1			
Lawrence, Mass.	5	[9] 2	1	1		1
Lead, S. Dak.	1	1				
Lehighton, Pa.	1	1				
Lewiston, Me.	2	1	1			
Lexington, Ky.	1		1			
Lima, Ohio.	1	1				
Lincoln, Nebr.	4	1	1		1	1
Little Falls, N. Y.	1		1			
Little Rock, Ark.	5	1	1	[10] 1	1	1
Long Branch, N. J.	2	1	1			
Los Angeles, Calif.	6	[11] 3	1	1		[12] 1
Louisville, Ky.	2	[1] 1	1			
Lowell, Mass.	4	1	1	1		1
Lynchburg, Va.	4	1	1	1	1	
Lynn, Mass.	3	[9] 2	1			
McAlester, Okla.	1		1			
McKeesport, Pa.	3	1		1		1
Macon, Ga.	5	1	1	1	1	1
Mahanoy City, Pa.	1	1				
Malone, N. Y.	1		1			
Manchester, Conn.	1			1		
Manchester, N. H.	4	[9] 2	1	1		
Mankato, Minn.	1		1			
Marion, Ind.	1		1			
Marlboro, Mass.	2		1	1		
Marquette, Mich.	1		1			
Marshall, Tex.	1	1				
Marshfield, Oreg.	1	[13] 1				
Memphis, Tenn.	6	[2] 2	1	1	1	1

[1] Operated under the name of Swift & Co., Inc.
[2] Including one operated under the name of Libby, McNeill & Libby.
[3] Including one operated by Smith, Richardson & Conroy (hotel supply company), in which Armour & Co. has a majority interest.
[4] Including the packing house market of the Nagle Packing Co.
[5] Including one branch owned by the Pittsburg Provision & Packing Co.
[6] The packing-house market.
[7] Including the wholesale market, the "retail market," and the Fowler Packing Co., the entire stock of which is owned by Armour & Co.
[8] Operated under the name of Libby, McNeill & Libby, 99.8 per cent of the stock of which is owned by Swift & Co., and is understood to have been distributed recently pro rata to the stockholders of Swift & Co.
[9] Including one operated under the name of John P. Squire & Co.
[10] Operated by the Morris Packing Co. (Maine).
[11] Including one operated under the name of the Omaha Hotel Supply Co., all the stock of which is owned by Swift & Co., and one operated under the name of Libby, McNeill & Libby.
[12] Operated by the Palace Meat & Provision Co., 60 per cent of the stock of which is owned by The Cudahy Packing Co., reported as doing a retail grocery and other market business.
[13] Formerly operated by the Union Meat Co., a Swift interest. Swift & Co. in 1919 acquired 100 per cent control in this company.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

A.—DOMESTIC BRANCH HOUSES—Continued.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Meriden, Conn	2	1	1			
Meridian, Miss	2	1	1			
Miami, Fla	1		1			
Middletown, N. Y	2	1	1			
Middletown, Conn	1			[1] 1		
Milford, Mass	2	1	1			
Millerton, N. Y	1			1		
Milwaukee, Wis	6	[2] 4	1		1	
Mineola, N. Y	1				1	
Minneapolis, Minn	6	[3] 2	1	1	1	1
Minot, N. Dak	1		1			
Missoula, Mont	1	1				
Mobile, Ala	3	1	1			1
Monroe, La	3	[4] 1	1			1
Montgomery, Ala	4	1	1	1		1
Montpelier, Vt	1	1				
Morristown, N. J	1	1				
Morristown, Pa	1			1		
Mount Carmel, Pa	1				1	
Mount Holly, N. J	1		1			
Mount Vernon, N. Y	1		1			
Muncie, Ind	1		1			
Muskegon, Mich	1	1				
Muskogee, Okla	2	1	1			
Nacogdoches, Tex	1		1			
Nanticoke, Pa	2	1	1			
Nashua, N. H	2	1				1
Nashville, Tenn	3	1	1		1	
Natchez, Miss	1	1				
Natick, Mass	1	1				
Newark, N. J	7	1	[5] 2	1	1	[5] 2
New Bedford, Mass	4	[7] 2	1	1		
New Britain, Conn	2	[8] 1	1			
New Brunswick, N. J	2	1	1			
Newhurgh, N. Y	3	[4] 1	1	1		
Newburyport, Mass	1	1				
New Castle, Pa	2		1			1
New Haven, Conn	4		1	1	1	1
New London, Conn	3	1	1		1	
New Orleans, La	6	[9] 2	1	1	[10] 1	1
Newport, R. I	2	1	1			
Newport News, Va	3	1	1	1		
New Rochelle, N. Y	1	[4] 1				
New York, N. Y	46	[11] 12	[12] 12	[13] 7	[14] 7	8
Norfolk, Va	7	[15] 2	[16] 2	1	1	1
North Adams, Mass	2	1	1			
Northampton, Mass	3	[17] 2	1			
Northfork, W. Va	2		1		1	
Norton, Va	2	1	1			

[1] Operated by the Middletown Beef & Provision Co., 67 per cent of the stock of which is owned by Morris & Co.

[2] Including two owned through the Plankinton Packing Co., all the stock of which is owned by Swift & Co., and one operated under the name of Libby, McNeill & Libby.

[3] Including one operated by Libby, McNeill & Libby at Minnesota Transfer, Minn.

[4] Operated under the name of Swift & Co., Inc.

[5] Including one owned by the Armour Packing Co.

[6] Including one operated by the Nagle Packing Co.

[7] Including one operated by John P. Squire & Co.

[8] Operated under the name of Andrews, Swift & Co., 67 per cent of the stock of which is owned by Swift & Co.

[9] Including one operated under the name of Swift & Co., Ltd., and one operated under the name of Libby, McNeill & Libby.

[10] Operated under the name of Wilson & Co., Inc. (Louisiana), all the stock of which, except the directors' qualifying shares, is owned by Wilson & Co., Inc.

[11] Including the Murray Hill Market, operated in 1916, but reported discontinued June 30, 1917, and one operated under the name of Libby, McNeill & Libby.

[12] Including one owned through the Armour Packing Co., one owned through the German-American Provision Co., all the stock of which is owned by Armour & Co.; one operated under the name of Adams Bros. Co., a trade name of Armour & Co.; and one operated under the name of the Atlantic Hotel Supply Co., also a trade name.

[13] Including one operated by the National Hotel Supply Co., all the stock of which is owned by Morris & Co.

[14] Including one operated by the Sinclair Sales Co., owned through the T. M. Sinclair Co., Ltd.; and one each operated by the Gotham Hotel Supply Co. and Stiefel O'Mara Co., both of which are owned by Wilson & Co., Inc.

[15] Including one operated under the name of Libby, McNeill & Libby.

[16] Including one operated by the Friedman Manufacturing Co., the branch reported "sold" August, 1917.

[17] Including one operated under the name of H. L. Handy Co.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

A.—DOMESTIC BRANCH HOUSES—Continued.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Norwich, Conn	2	1	1			
Oakland, Calif	3	[1] 2				1
Ogdensburg, N. Y	1		1			
Oil City, Pa	2	1	1			
Oklahoma City, Okla	3		1	[2] 1	1	
Olean, N. Y	1		1			
Omaha, Nebr	10	[3] 2	[4] 3	3		2
Oneonta, N. Y	1	[5] 1				
Orange, N. J	1	1				
Oshkosh, Wis	1	1				
Ossining, N. Y	1		1			
Oswego, N. Y	2	[6] 1	1			
Ottumwa, Iowa	1				1	
Paducah, Ky	1		1			
Palestine, Tex	1	1				
Panama	2		2			
Paris, Tex	3	1	1		1	
Parkersburg, W. Va	1		1			
Passaic, N. J	2		1			1
Paterson, N. J	3		1	1	1	
Pawtucket, R. I	2	1	1			
Peekskill, N. Y	1		1			
Pensacola, Fla	4	1	1		1	1
Peoria, Ill	4	1	1		[6] 1	1
Perth Amboy, N. J	1	1				
Philadelphia, Pa	26	[7] 9	[8] 8	[9] 5	3	1
Philipsburg, Pa	1	1				
Phillipsburg, N. J	1	1				
Phoenix, Ariz	3	1	1		1	
Piedmont, W. Va	1		1			
Pine Bluff, Ark	2	1	1			
Pittsburgh, Pa	12	[10] 2	[11] 5	3	1	1
Pittsfield, Mass	1			1		
Pittston, Pa	3			1	1	1
Plainfield, N. J	1	1				
Plattsburg, N. Y	1		1			
Plymouth, Mass	1		1			
Pocatello, Idaho	2	1				1
Port Chester, N. Y	1	[12] 1				
Port Huron, Mich	1	1				
Port Jervis, N. Y	1	[5] 1				
Portland, Me	7	[13] 4	1	1		1
Portland, Oreg	8	[14] 3	1	1	[15] 1	2
Portsmouth, N. H	1		1			
Pottstown, Pa	1	1				
Pottsville, Pa	1	1				
Poughkeepsie, N. Y	2		1	1		
Providence, R. I	6	[16] 2	1	1	1	1
Pueblo, Colo	2	1	[17] 1			

[1] Including one operated by the Western Meat Co., in which all the Big Five have an interest. Swift & Co. owns 44.5 per cent of the stock.
[2] The packing-house market.
[3] Including the packing-house market.
[4] Including the "wholesale market" and the "retail market" in South Omaha.
[5] Operated under the name of Swift & Co.
[6] Operated by T. M. Sinclair & Co., Ltd.
[7] Including one operated by Libby, McNeill & Libby, and one operated by Wilson & Rogers, a subsidiary of Libby, McNeill & Libby.
[8] Including one owned through the Armour Packing Co., one operated as the Keystone Hotel Supply Co. (a trade name of Armour & Co.), and one operated by the Friedman Manufacturing Co.
[9] Including one operated under the trade name of W. A. Millar & Co., and one operated by the National Hotel Supply Co. All Philadelphia branches of Morris & Co. are operated by its subsidiary, Morris & Co. (Pa.)
[10] Including one operated under the name of Libby, McNeill & Libby.
[11] Including one operated under the name of the Hammond Packing Co., all the stock of which is owned by Armour & Co., and one operated by the Friedman Manufacturing Co.
[12] Operated by the Hotchkiss Beef Co., 99 per cent of the stock of which is owned by Swift & Co.
[13] Including one owned by John P. Squire & Co., one operated by the Portland Abattoir, a trade name of the Consolidated Rendering Co., 77 per cent of the stock of which is owned by the Swift family, and one operated under the name of Libby, McNeill & Libby.
[14] Including one formerly operated by the Union Meat Co., a Swift interest, in which Swift & Co. in 1919 acquired a 100 per cent control, and one operated under the name of Libby, McNeill & Libby.
[15] Operated by the Sinclair Provision Co., of which all except three directors' qualifying shares are owned by T. M. Sinclair & Co., Ltd., a Wilson interest.
[16] Including one operated under the name of John P. Squire & Co.
[17] Operated under the name of Colorado Packing & Provision Co.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

A.—DOMESTIC BRANCH HOUSES—Continued.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Pullman, Wash	1		[1] 1			
Quincy, Ill	3	1	1			1
Quincy, Mass	1	1				
Racine, Wis	1		1			
Raleigh, N. C	1	1				
Reading, Pa	2	1			1	
Red Wing, Minn	1				1	
Reno, Nev	2	1	1			
Richmond, Va	5	1	[2] 2	1	1	
Ritzville, Wash	1		[11] 1			
Roanoke, Va	4	1	1	1	1	
Rochester, N. H	1	1				
Rochester, N. Y	4	[3] 1	1	1	1	
Rockford, Ill	3	1	1			1
Rock Island, Ill	1	1				
Rockland, Me	2	1	1			
Rockville, Conn	1		1			
Rocky Mount, N. C	1	1				
Rome, Ga	1		1			
Rome, N. Y	1		1			
Rutland, Vt	2	[4] 2				
St. Albans, Vt	1	1				
St. Johnsbury, Vt	1	1				
St. Joseph, Mo	5	[5] 2	1	[6] 1		1
St. Louis, Mo	16	[7] 6	2	6	1	1
St. Maries, Idaho	1		[11] 1			
St. Paul, Minn	6	[8] 2	1	1	1	1
Sacramento, Calif	3	[9] 1	1			1
Saginaw, Mich	1				1	
Salem, Mass	4	[4] 2	1			1
Salisbury, N. C	1	1				
Salt Lake City, Utah	3	[10] 1	1			1
San Antonio, Tex	4	1	1	1	1	
San Bernardino, Calif	1					1
San Diego, Calif	3	1	1			1
Sandusky, Ohio	1		1			
San Francisco, Calif	6	[11] 3	1	1		1
San Jose, Calif	1	[9] 1				
Saratoga Springs, N. Y	2	[12] 1	1			
Saugerties, N. Y	1				1	
Sault Ste. Marie, Mich	1		1			
Savannah, Ga	5	1	1	1	1	1
Schenectady, N. Y	2	[12] 1			1	
Scranton, Pa	5	1	1	1	1	1
Seattle, Wash	4	[13] 2	1			1
Selma, Ala	1		1			
Shamokin, Pa	1		1			
Shenandoah, Pa	2	1	1			
Sherman, Tex	1		1			
Shreveport, La	5	[14] 1	1	1	1	1
Sioux City, Iowa	2		1			1
Somerville, N. J	1	1				
South Bend, Ind	1		1			
South Bethlehem, Pa	1	1				
Spartanburg, S. C	3	1		1	1	
Spencer, Mass	1			1		
Spirit Lake, Idaho	1		[11] 1			
Spokane, Wash	2	1	[15] 1			
Springfield, Ill	3	1	1			1

[1] Not formally taken over from the E. H. Stanton Co. till the spring of 1917.
[2] Including one operated by the Friedman Manufacturing Co., reported discontinued.
[3] Operated under the name of F. & C. Crittenden Co., in which Swift & Co. owns a half interest.
[4] Including one operated by John P. Squire & Co.
[5] Including the packing-house market at South St. Joseph.
[6] The packing-house market.
[7] Including the Union Market, operated by Louis Schaefer, a trade name of Swift & Co. (Ill.), and the Dressed Beef Plant Market, and one operated under the name of Libby, McNeill & Libby.
[8] Including the South St. Paul packing-house market.
[9] Operated by the Western Meat Co., in which all the Big Five have an interest. Swift & Co. owns 44.5 per cent of the stock.
[10] Operated under the name of the Western Packing Co., all the stock of which is owned by Swift & Co.
[11] Including one operated under the name of the Western Meat Co. and one operated under the name of Libby, McNeill & Libby.
[12] Operated under the name of Swift & Co., Inc.
[13] Including one operated under the name of Libby, McNeill & Libby.
[14] Operated under the name of Swift & Co., Ltd.
[15] Not including the eight markets taken over from the E. H. Stanton Co. in the spring of 1917.

Number of principal marketing agencies, by cities, of the five largest packers and their controlled companies, etc.—Continued.

City.	Total big packers.	Swift.	Armour.	Morris.	Wilson.	Cudahy.
Springfield, Mass	3	[1] 1	1	1		
Springfield, Ohio	1	1				
Stamford, Conn	3	1	1		1	
Stamford, Tex	1		1			
Stapleton, N. Y	1	[2] 1				
Steubenville, Ohio	1		1			
Stockton, Calif	1	[3] 1				
Streator, Ill	1		1			
Sunbury, Pe	1		1			
Syracuse, N. Y	4	1	1	1	1	
Tacoma, Wash	1	[4] 1				
Tampa, Fla	4	1	1	1		1
Taylor, Tex	1	1				
Tekoa, Wash	1		[5] 1			
Terre Haute, Ind	1			1		
Texarkana, Ark	2	1			1	
Texarkana, Tex	1		1			
Thurmond, W. Va	1		1			
Toledo, Ohio	4	[6] 2	1	1		
Topeka, Kans	1					1
Trenton, N. J	4	1	1	1	1	
Trinidad, Colo	2	1	1			
Troy, N. Y	4	[2] 1	1	1	1	
Tulsa, Okla	1		1			
Tupelo, Miss	1	1				
Tyler, Tex	1	1				
Uniontown, Pa	2		1		1	
Utica, N. Y	4	[2] 1	1	1	1	
Valdosta, Ga	2	1	1			
Vicksburg, Miss	3	1	1			1
Victoria, Tex	1		1			
Waco, Tex	3	1	1	1		
Waltham, Mass	2	1	1			
Ware, Mass	1	1				
Warren, Pa	1		1			
Washington, D. C	7	[7] 2	[8] 2	1	1	1
Washington, Pa	1		1			
Waterbury, Conn	4	1	1	1		1
Watertown, N. Y	1		1			
Waterville, Me	2		1		1	
Wausau, Wis	1		1			
Webster, Mass	1	1				
Westchester, N. Y	1			1		
Westerly, R. I	1		1			
Westfield, Mass	1	1				
West Point, Miss	1	1				
Wheeling, W. Va	1	1				
White Rock Junction, Vt	1	1				
Wichita, Kans	1					1
Wilkes-Barre, Pa	4	1	1	1	1	
Williamsburg, N. Y	1			1		
Williamson, W. Va	1		1			
Williamsport, Pa	1	1				
Willimantic, Conn	1	1				
Wilmington, Del	3	1	1		1	
Wilmington, N. C	3	1	1	1		
Winston-Salem, N. C	2	1		1		
Woburn, Mass	1		1			
Woodside, N. H	1		1			
Woonsocket, R. I	2	1	1			
Worcester, Mass	5	[9] 2	1	1		1
Yazoo City, Miss	1		1			
Yoakum, Tex	1	1				
Yonkers, N. Y	3	1	1	1		
Youngstown, Ohio	3	1	1	1		
Zanesville, Ohio	1		1			

[1] Operated under the name of the George Nye Co., one half the stock of which is owned by Swift & Co.
[2] Operated under the name of Swift & Co., Inc.
[3] Operated by the Western Meat Co., in which all the Big Five have an interest. Swift & Co. owns 44.5 per cent of the stock.
[4] Formerly operated by the Union Meat Co., a Swift interest. Swift & Co. in 1919 acquired 100 per cent control in this company.
[5] Not formally taken over from E. H. Stanton Co. until the spring of 1917.
[6] Including one operated under the name of Libby, McNeill & Libby.
[7] Including one operated by Wilson & Rogers, a subsidiary of Libby, McNeill & Libby.
[8] Including one operated under the name of Columbia Hotel Supply Co., a trade name of Armour & Co.
[9] Including one operated by John P. Squire & Co.

B.—SUBSTOCKS AND SUB-BRANCHES.

Swift & Co.:

Bellows Falls, Vt., under branch at Brattleboro, Vt.
Fort Kent, Me., under branch at Houlton, Me.
Calais, Me., under branch at Bangor, Me.
Pittsfield, Mass., under branch at Springfield, Mass.
Rumford Falls, Me., under branch at Lewiston, Me.
Dunkirk, N. Y., under branch at Elk Street Market, Buffalo, N. Y.
Meadville, Pa., under branch at Oil City, Pa.
Suspension Bridge, N. Y., under branch at Elk Street Market, Buffalo, N. Y.
Williamson, W. Va., under branch at Elkhorn, W. Va.
Hannibal, Mo., under branch at Quincy, Ill.
Appleton, Wis., under branch at Oshkosh, Wis.
Escanaba, Mich., under branch at Ishpeming, Mich.
Green Bay, Wis., under branch at Oshkosh, Wis.
West Superior, Wis., under branch at Duluth, Minn.
Winona, Minn., under branch at La Crosse, Wis.
Miami, Fla., under branch at Jacksonville, Fla.
Sheffield, Ala., under branch at Albany, Ala.
Tuscaloosa, Ala., under branch at Birmingham, Ala.
Bonham, Tex., under branch at Denison, Tex.
Leon Springs, Tex., under branch at San Antonio, Tex.
San Marcos, Tex., under branch at San Antonio, Tex.
Temple, Tex., under branch at Waco, Tex.
Bay City, Tex., under branch at Wharton, Tex.
Brady, Tex., under branch at Brownwood, Tex.
Cisco, Tex., under branch at Abilene, Tex.
Clovis, N. Mex., under branch at Amarillo, Tex.
Douglas, Ariz., under branch at El Paso, Tex.
Eagle Lake, Tex., under branch at Wharton, Tex.
Gonzales, Tex., under branch at Yoakum, Tex.
Lubbock, Tex., under branch at Amarillo, Tex.
Marfa, Tex., under branch at El Paso, Tex.
Quanah, Tex., under branch at Amarillo, Tex.
Roswell, N. Mex., under branch at Amarillo, Tex.
San Angelo, Tex., under branch at Brownwood, Tex.
Stamford, Tex., under branch at Abilene, Tex.
Tucson, Ariz., under branch at El Paso, Tex.
Victoria, Tex., under branch at Yoakum, Tex.
Klamath Falls, Oreg., under branch at Ashland, Oreg.
Tacoma, Wash., under branch at Seattle, Wash.

Armour & Co.:

Danville, Va.
Lorain, Ohio.
Merrill, Wis.
Rumford Falls, Me.
Staunton, Va.
Terre Haute, Ind.

C.—STORAGE AND DELIVERIES.

Swift & Co.:
Van Buren, Me., under branch at Houlton, Me.
Burlington, N. C., under branch at Durham, N. C.
Mount Airy, N. C., under branch at Winston-Salem, N. C.
Statesville, N. C., under branch at Salisbury, N. C.
Dawson, Ga., under branch at Macon, Ga.
Dublin, Ga., under branch at Macon, Ga.
Elberton, Ga., under branch at Atlanta, Ga.
Greenwood, S. C., under branch at Augusta, Ga.
Hawkinsville, Ga., under branch at Macon, Ga.
Ingleside, Ga., under branch at Atlanta, Ga.
Laurens, S. C., under branch at Spartanburg, S. C.
Waynesboro, Ga., under branch at Augusta, Ga.
Eutaw, Ala., under branch at Meridian, Miss.
Lufkin, Tex., under branch at Houston, Tex.
Navasota, Tex., under branch at Houston, Tex.
Alice, Tex., under branch at Corpus Christi, Tex.
Big Springs, Tex., under branch at Abilene, Tex.
Bowie, Ariz., under branch at El Paso, Tex.
Deming, N. Mex., under branch at El Paso, Tex.
Douglas, Ariz., under branch at El Paso, Tex.
Lordsburg, N. Mex., under branch at El Paso, Tex.
McAllen, Tex., under branch at Brownsville, Tex.
Plainview, Tex., under branch at Amarillo, Tex.
Rio Grande, Tex., under branch at Brownsville, Tex.
Silver City, N. Mex., under branch at El Paso, Tex.
Holbrooke, Ariz., under branch at Albuquerque, N. Mex.
Elko, Nev., under branch at Reno, Nev.
French, N. Mex., under branch at Trinidad, Colo.
Baker, Oreg., under branch at Boise, Idaho.
Bandon, Oreg., under branch at Portland, Oreg.
Burley, Idaho, under branch at Pocatello, Idaho.
Coquille, Oreg., under branch at Portland, Oreg.
Dillon, Mont., under branch at Butte, Mont.
Helena, Mont., under branch at Missoula, Mont.
Idaho Falls, Idaho, under branch at Pocatello, Idaho.
Kalispell, Mont., under branch at Spokane, Wash.
Livingston, Mont., under branch at Billings, Mont.
Marshfield, Oreg., under branch at Portland, Oreg.
Myrtle Point, Oreg., under branch at Portland, Oreg.
Ontario, Oreg., under branch at Boise, Idaho.
Shoshone, Idaho, under branch at Boise, Idaho.
Twin Falls, Idaho, under branch at Pocatello, Idaho.
Vancouver, Wash., under branch at Portland Oreg.
Washington, Idaho, under branch at Spokane, Wash.
Weiser, Idaho, under branch at Boise, Idaho.
Walla Walla, Wash., under branch at Portland, Wash.

D.—CONSIGNEES.

Swift & Co.:	
Auburn, Me	E. W. Penley.
Bay City, Mich. (The Cornwell Co.)	J. J. Wolfitt.
Boston, Mass	J. V. Fletcher Co.
Carbondale, Pa	Carbondale Beef Co.
Chicago, Ill	Thos. Fennesey & Co.
Flint, Mich. (The Cornwell Co.)	C. McMorris.
Hartford, Conn	Connecticut Beef Co.
Haverhill, Mass	E. H. Moulton Co.
Houghton, Mich	F. Wieber.
New Haven, Conn	Strong, Barnes, Hart & Co.
Paterson, N. J	D. Fullerton & Co.
Pittsfield, Mass	Edgar P. Wood.
Providence, R. I	J. F. Comstock & Sons Co.
Saginaw, Mich. (The Cornwell Co.)	N. W. Simpson.
Sault Ste. Marie, Mich. (The Cornwell Co.)	W. G. Tafert.
Taunton, Mass	A. White & Co.
Traverse City, Mich. (The Cornwell Co.)	R. D. Bradshaw.
Armour & Co.:	
Bay City, Mich	Hammond, Standish & Co.
Boston, Mass	Adams-Chapman Co.
Boston, Mass	W. F. Woodbridge Co.
Bridgeport, Conn	J. R. Woodhill.
Brooklyn, N. Y	D. Mayer.
Burlington, N. J	L. H. Stein.
Chicago, Ill	R. J. Collins.
Dubois, Pa	Morris Beef Co.
Harlem, N. Y	D. Mayer.
Lawrence, Mass	George Bancroft.
Middletown, Conn	D. L. Briggs & Co.
Newark, N. J	Coffin Bros.
New Bedford, Mass	J. W. Bannister.
New York, N. Y	D. Mayer.
Nyack, N. Y	G. Hotchkiss.
Plainfield, N. J	Union Beef Co.
Portland, Me	Cummings Bros.
Providence, R. I	Whatcheer Beef Co.
Punxsutawney, Pa	Morris Beef Co.
Ridgeway, Pa	Morris Beef Co.
Saginaw, Mich	Hammond, Standish & Co.
Trenton, N. J	L. H. Stein.
Morris & Co.:	
Cleveland, Ohio	Housom-Grace Co.
Greenville, Ala	A. Steinhart.
Milwaukee, Wis	J. J. Salmeck.
Newbern, N. C	D. W. Roberts & Co.
Pulaski, Va	H. M. Van Doren.
Raleigh, N. C	Capitol Feed & Grain Co.
Washington, N. C	F. F. Wooland & Co.

E.—FOREIGN BRANCH HOUSES.[1]

Swift:
- Swift & Co.'s Cuban branch house:
  - Havana.
- Swift & Co.'s Canadian branch houses:
  - Calgary, Alberta.
  - Edmonton, Alberta.
  - Ft. William, Ont.
  - Montreal, Que. (Place Viger Market).
  - Montreal, Que. (Bonaventure Market).
  - Moose Jaw, Sask.
  - Nelson, B. C.
  - Ottawa, Ont.
  - St. Catherines, Ont.
  - Toronto, Ont. (St. Lawrence Market).
  - Vancouver, B. C.
  - Victoria, B. C.
  - West Toronto, Ont. (Packing house market).
  - Winnipeg, Man.
- Libby, McNeill & Libby (Maine) :[2]
  - Libby, McNeill & Libby of W. Va.[3]
  - Vancouver, B. C., Can.[4]
  - Winnipeg, Man., Can.[4]
- Libby, McNeill & Libby, Ltd.:
  - London, England.
  - Manchester, England.
  - Liverpool, England.
  - Birmingham, England.
  - Bristol, England.
  - Newcastle-on-Tyne, England.
  - Glasgow, Scotland.

Armour & Co.:
- Havana, Cuba.

Morris & Co.:
- Morris Packing Co., Ill.:
  - Paris, France.
  - Rotterdam, Holland.
  - Christiania, Norway.
  - Hamburg, Germany.
  - Antwerp, Belgium.
- Morris Beef Co., Ltd.:
  - London, England.

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[1] The list of foreign branch houses here given is incomplete. According to a recent report published by the British Government American packers have 144 wholesale branches in the United Kingdom. Most of these probably belong to the Big Five. (Report of the Committee on Trusts, Ministry of Reconstruction, 1919 [Cd. 9236].)

[2] In 1919 the following subsidiaries also operated branches: Societe Anonyme Libby, McNeill & Libby, Paris, France, and Compania Libby McNeill & Libby de Cuba, Havana, Cuba.

[3] Operated a branch at St. Johns, N. F., in 1919.

[4] Operated by Libby, McNeill & Libby, Canada Limited, in 1919, as were also the following additional branches in Canada: Halifax, St. John (N. B.), Toronto, and Chatham.

F.—FOREIGN SELLING COMPANIES.

Armour & Co.:	
Allen & Crom, Ltd	London, England.
Armour & Co., A. S	Copenhagen, Denmark.
Armour & Co., Ltd	London, England.
Armour & Co., A. G.[1]	Frankfort, Germany.
Armour et Compagnie, Société Anonyme	Paris, France.
Armour Societá Anonima Italiana	Milan, Italy.
Fowler Bros., Ltd	London, England.
James Wright & Co.[2]	London, England.
Swift & Co.:	
Curry & Co., Ltd	London, England.
Fort Garry Market Co., Ltd	Winnipeg, Canada.
Namayo Market	Edmonton, Alberta.
Garner, Bennet & Co., Ltd	Liverpool, England.
Lane & Co., H. A., Ltd	London, England.
Libby, McNeill & Libby, of London	London, England.
Swift, H. L., Stall	London, England.
Swift Beef Co., Ltd	London, England.
Swift Packing Co	Paris, France.
Wilson & Co., Inc.:	
Archer & Co., Ltd	London, England.
Nuttall Provision Co., Ltd	Liverpool, England.
Morris & Co.:	
Morris Beef Co., Ltd	London, England.
The Cudahy Packing Co.:	
Cudahy & Co., Ltd	Sidney, New South Wales.
The Cudahy Packing Co., Ltd	London, England.

[1] Inactive since August, 1914.
[2] Incorporated under the laws of West Virginia.

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EXHIBIT IV.

BIG PACKER COMPANIES PRODUCING OR HANDLING FOODS NOT DERIVED FROM THE SLAUGHTERED ANIMAL.

[For branch houses and other selling agencies handling general food lines, see Exhibit III.]

A.—SWIFT & CO.

Company.		Relation to big packer.	Foods.	
			Produced and handled.	Handled.
Ahuimanu Pine & Ranch Co.	Honolulu, Hawaii	100 per cent owned by Libby, McNeill & Libby (Maine), in which Swift & Co. owns 99.8 per cent. It is understood this stock was recently distributed pro rata to the stockholders of Swift & Co.	Pineapples (grown)	
Alamo Oil & Refining Co.	San Antonio, Tex.	75 per cent owned by Swift family interests	Cottonseed products	
Alaska Fisherman's Packing Co.	Chicago, Ill.	Trade name of Libby, McNeill & Libby, but inactive at time of report, 1918.		
American Milk Co.	do	100 per cent owned by Libby, McNeill & Libby		Milk products (as brokerage business).
American Milk Products Co.	do	Trade name of Libby, McNeill & Libby, but inactive at time of report, 1918.		
Andrews, Swift & Co.	New Britain, Conn.	67 per cent owned by Swift & Co.		Butter, eggs, and cheese.
Atlantic Produce Co.	Atlantic, Iowa	Trade name of W. F. Priebe Co., in which Swift & Co. owns 100 per cent.	Butter, eggs, and poultry[1]	
Audubon Produce Co.	Audubon, Iowa	Buying station for Atlantic Produce Co., Atlantic, Iowa.		Butter, eggs, and poultry.
Bencini Cotton Oil Mills (not Inc.)	Fort Worth, Tex.	The entire ownership was secured by L. F. Swift in 1918, and transferred by him to the Consumers Cotton Oil Mills (not Inc.), which is 100 per cent owned by Swift & Co.	Cottonseed products	
Alvin J. Bozarth	Boonville, Mo.	Buying station for the F. M. Stamper Co., Moberly, Mo., 54 per cent owned by W. F. Priebe Co., in which Swift & Co. owns 100 per cent.		Poultry and eggs.
L. W. Brockman & Co.	Fayette, Mo.	Branch house of F. M. Stamper Co., Moberly, Mo.	Poultry and eggs[1]	
Canfield Commission Co.	Newark, N. J.	100 per cent owned by Swift & Co.		Produce.
Consumers Cotton Oil Mills (not Inc.) (operates 8 cotton oil mills).	Chicago, Ill.	do	Cottonseed products	
Continental Packing Co.	do	100 per cent owned by Libby, McNeill & Libby		Condensed, evaporated, and powdered milk; canned vegetables and salmon.

[1] Poultry and eggs collected and packed.

Big packer companies producing or handling foods not derived from the slaughtered animal—Continued.

A.—SWIFT & CO.—Continued.

Company.		Relation to big packer.	Foods.	
			Produced and handled.	Handled.
F. & C. Crittenden Co.	Rochester, N. Y.	50 per cent owned by Swift & Co.		Produce.
Delaware Canning Co.	Chicago, Ill.	Trade name of Libby, McNeill & Libby, but inactive at time of report, 1918.		
Demcey & Sibley Co.	Cuba, N. Y.	100 per cent owned by Swift & Co.		Cheese.
H. C. Derby Co.	New York City.	....do.	Beets.	
Dixon Produce Co.	Norborne, Mo.	Branch house of F. M. Stamper Co., Moberly, Mo.		Poultry, eggs, and cream.
Earlham Produce Co.	Earlham, Iowa.	Trade name of W. F. Priebe Co.		Butter, eggs, and poultry.
Emery Food Co.	Chicago, Ill.	100 per cent owned by Libby, McNeill & Libby (Maine), in which Swift & Co. owns 99.8 per cent.	Libby, McNeill & Libby cans certain products under this trade-name.	Canned goods (as brokerage business).
Emery Provision Co.	....do.	Trade name of Libby, McNeill & Libby, but inactive at time of report, 1918.		
Fantel Supply Co.	Boston, Mass.	Trade name of Vermont Supply Co. This is owned by the G. H. Hammond Co., 100 per cent of which is owned by Swift & Co.		Butterine.
Foster Packing Co.	Chicago, Ill.	Trade name of Libby, McNeill & Libby.	Libby, McNeill & Libby cans certain products under this trade name.	
Franco-Swiss Catering Co.	....do.	Trade name of Libby, McNeill & Libby, but inactive at time of report, 1918.		
Frank Grampp & Co.	Princeton, Ill.	Trade name of W. F. Priebe Co.	Poultry, eggs, and butter[1]	
L. G. Grampp Produce Co.	Sterling, Ill.	....do.	....do.[1]	
G. H. Hammond Co.	Chicago, Ill.	100 per cent owned by Swift & Co.	Butterine.	Produce, lard substitutes.
H. L. Handy Co.	Springfield, Mass.	60 per cent owned by Swift & Co.		Butter and eggs.
Harlan Produce Co.	Harlan, Iowa.	Trade name of W. F. Priebe Co.		Butter, eggs, and poultry.
T. A. Hightshoe.	Marshall, Mo.	Branch house of the F. M. Stamper Co., Moberly, Mo.		Poultry and eggs.
Honolulu Pine Co.	Honolulu, Hawaii.	100 per cent owned by Libby, McNeill & Libby, of Honolulu, Ltd., in which Libby, McNeill & Libby (Maine) owns 95.7 per cent.	Pineapples (grown).	
Independent Salt Co.	Kanapolis, Kans.	50 per cent owned by Swift & Co.; 50 per cent owned by Armour & Co.	Salt.	
Kahului Pine & Ranch Co.	Honolulu, Hawaii.	66⅔ per cent owned by Libby, McNeill & Libby, of Honolulu, Ltd.	Pineapples (grown).	
Korlau Fruit Co.	....do.	100 per cent owned by Libby, McNeill & Libby, of Honolulu, Ltd.	....do.	
S. S. Learned Co.	Boston, Mass.	51 per cent owned by Consolidated Rendering Co., which is 77 per cent owned by the Swift family.		Canned goods.

Libby, McNeill & Libby (Maine)	Chicago, Ill.	99.8 per cent owned by Swift & Co.	Canned foods, such as fruits, vegetables, pickles, sauerkraut, and other condiments; milk, and salmon.	
Libby, McNeill & Libby of Canada.	Chatham, Ontario	100 per cent owned by Libby, McNeill & Libby (Maine).	Canned foods	
Libby, McNeill & Libby of Honolulu (Ltd.).	Honolulu, Hawaii	95.7 per cent owned by Libby, McNeil & Libby (Maine).	Fruits (grown and canned)	
Libby, McNeill & Libby of London.	London, England	100 per cent owned by Libby, McNeill & Libby (Maine).		Canned foods.
Libby, McNeill & Libby of Louisiana.	Chicago, Ill.	do		Do.
Libby, McNeill & Libby of West Virginia.	do	do		Do.
Manning Produce Co.	Manning, Iowa	Trade name of W. F. Priebe Co	Butter, eggs, and poultry [1]	
Marshall Produce Co.	Marshall, Mo.	Branch house of F. M. Stamper Co., Moberly, Mo.	Poultry and eggs [1]	
G. W. Murphy	Havana, Ill.	Buying station for Martin Schulze, Bushnell, Ill., which is a trade name of W. F. Priebe Co.		Butter, eggs, and poultry.
Nevada Packing Co	Reno, Nev.	100 per cent owned by Western Meat Co., in which Swift & Co. owns 44.5 per cent; Morris & Co., 29.9 per cent; Armour & Co., 2.6 per cent; Wilson & Co., Inc., 1.5 per cent; The Cudahy Packing Co., 0.2 per cent.	Lard compounds and substitutes	Poultry, butter, eggs, cheese, and apples.
North Packing & Provision Co.	Somerville, Mass.	77 per cent owned by Swift family interests	do	Produce.
George Nye Co.	Springfield, Mass.	50 per cent owned by Swift & Co.		Butter, eggs, poultry, cheese, game, beans, peas, etc.
Oakland Meat & Packing Co.	Emeryville, Calif.	100 per cent owned by Western Meat Co.	Lard compounds	
Omaha Packing Co.	Chicago, Ill.	100 per cent owned by Swift & Co.		Butterine [2], lard compounds.
W. B. Parrott Co.	Carroll, Jefferson, Onawa, Iowa.	Trade name of W. F. Priebe Co	Poultry, eggs, and butter [1]	
Plankinton Packing Co.	Milwaukee, Wis.	100 per cent owned by Swift & Co.		Butterine and lard compounds.
E. K. Pond Packing Co.	Chicago, Ill.	do	Canned poultry and peanut butter	
W. F. Priebe Co.	do	do		Butter, eggs, and poultry.
Rotan Cotton Oil Co.	Fort Worth and Rotan, Tex.	Entire ownership was secured by L. F. Swift in 1918, and transferred by him to the Consumers Cotton Oil Mills (not Inc.), which is 100 per cent owned by Swift & Co.	Cotton oil	
W. H. Schreitling	Monmouth, Ill.	Trade name of W. F. Priebe Co	Butter, eggs, and poultry [1]	
Martin Schulze	Bushnell, Ill.	do	do.[1]	
Schwartz Produce Co.	Lanark, Ill.	Trade name of W. F. Priebe Co	do.[1]	
Springfield Provision Co.	Chicopee, Mass.	75 per cent owned by Swift family interests		Lard compounds and substitutes.
John P. Squire & Co. (Maine)	Cambridge, Mass.	93 per cent owned by Swift family interests		Do.
F. M. Stamper Co.	Moberly, Mo.	54 per cent owned by W. F. Priebe Co.	Creamery and renovated butter, poultry, and eggs.[1]	
Stetson & Ellison Co.	Camden, Del.	50 per cent owned by Libby, McNeill & Libby (Maine).	Fruits, vegetables, and tomato products.	
Swift & Co.	Alma, Mich.		Creamery and renovated butter, poultry, and eggs.[1]	Cheese.

[1] Poultry and eggs collected and packed.

[2] Handled prior to 1915.

Big packer companies producing or handling foods not derived from the slaughtered animal—Continued.

A.—SWIFT & CO.—Continued.

Company.		Relation to big packer.	Foods.	
			Produced and handled.	Handled.
Swift & Co.	Atlanta, Ga.		Refined cotton oil and compound.	
Do.	Beatrice, Nebr.		Butter.	Cheese, poultry, and eggs.
Swift & Co., purchasers of Mullen-Blackledge-Nellis Co.	Brazil, Ind.		Tomato products and food specialties.	
Swift & Co.	Cadillac, Mich.		Butter, poultry, and eggs [1]	Cheese.
Do.	Centerville, Iowa.		Butter.	Poultry and eggs.
Do.	Ceres, Calif.		do.	Cheese, poultry, and eggs.
Do.	Charlotte, N. C.		Refined cotton oil and compound.	
Do.	Chicago, Ill.		Cottonseed oil, butterine, lard compounds.	Cheese, butter, poultry, and eggs.
Do.	Chillicothe, Mo.			Do.
Do.	Cincinnati, Ohio.			Do.
Do.	Clarinda, Iowa.		Creamery and renovated butter, poultry, and eggs.[1]	Cheese.
Do.	Clinton, Iowa.		do.[1]	Cheese.
Do.	Columbus, Nebr.		Poultry and eggs [1]	Cheese and butter.
Do.	Creston, Iowa.		Butter, poultry, and eggs [1]	Cheese.
Do.	Decatur, Ill.		do.[1]	
Do.	Defiance, Ohio.		Creamery and renovated butter, poultry, and eggs.[1]	
Do.	Denver, Colo.		Creamery and renovated butter, poultry, eggs, butterine, and lard compounds.[1]	Do.
Do.	Des Moines, Iowa.		Butter.	Cheese, poultry, and eggs.
Do.	Dubuque, Iowa.		Butter, poultry, and eggs [1]	Cheese.
Do.	East Cambridge, Mass.		Butterine.	
Do.	East St. Louis, Ill.		Butterine and lard compounds.	Cheese, butter, poultry, and eggs.
Do.	Enid, Okla.		Butter.	Cheese, poultry, and eggs.
Do.	Fort Worth, Tex.		Butterine, lard compound, butter, poultry, and eggs.[1]	
Do.	Gowrie, Iowa.			Butter, eggs, poultry, and cheese.
Do.	Grinnell, Iowa.			Do.
Do.	Hardwick, Calif.		Butter.	Cheese, poultry, and eggs.
Do.	Harvey, La.		Refined cotton oil and compound.	
Do.	Hutchinson, Kans.		Creamery and renovated butter, poultry, and eggs.[1]	Cheese.
Do.	Iowa Falls, Iowa.		Butter, poultry, and eggs [1]	Do.

Do	Jacksonville, Ill		Butter	Cheese, poultry, and eggs.
Do	Jefferson, Iowa			Butter, cheese, eggs, and poultry.
Do	Jersey City, N. J		Butterine and lard compounds	
Do	Kansas City, Kans		Butterine, cottonseed oil, lard compound.	Do.
Do	Kenyon, Minn			Do.
Do	Keokuk, Iowa		Creamery and renovated butter, poultry, and eggs.[1]	Cheese.
Do	Kokomo, Ind		Butter, poultry, and eggs[1]	Do.
Do	Lima, Ohio		Butter	Cheese, poultry, and eggs.
Do	Lincoln, Nebr		Butter, poultry, and eggs[1]	Cheese.
Do	Marion, Ind		do.[1]	Do.
Do	Memphis, Tenn		Refined cotton oil and lard compound.	
Do	Nevada, Mo		Butter	Cheese, poultry, and eggs.
Do	Newton, Iowa			Butter, cheese, eggs, and poultry.
Do	Oklahoma City, Okla		Butter	Cheese, poultry, and eggs.
Do	Ottumwa, Iowa		Creamery and renovated butter, poultry, and eggs.[1]	Cheese.
Do	Parsons, Kans		Butter	Cheese, poultry, and eggs.
Do	Pattonsburg, Mo			Cheese, butter, poultry, and eggs.
Do	Sabetha, Kans		Butter, poultry, and eggs[1]	Cheese.
Do	St. Louis, Mo		do	Lard compounds.
Do	San Luis Obispo, Calif		Butter	Cheese, poultry, and eggs.
Do	Sedalia, Mo		do	Do.
Do	Sheldon, Iowa			Cheese, butter, poultry, and eggs.
Do	South Omaha, Nebr		Butterine and lard compound	Do.
Do	South St. Joseph, Mo			Butterine and lard compounds, butter, poultry, and eggs.
Do	South St. Paul, Minn		Butterine, lard compounds, creamery and renovated butter, poultry, and eggs.[1]	
Do	Springfield, Mo		Butter	Cheese, poultry, and eggs.
Do	Trenton, Mo		do	Do.
Do	Waterloo, Iowa			Cheese, butter, poultry, and eggs.
Do	Wichita, Kans		Butter, poultry, and eggs[1]	Cheese.
Thomas Pineapple Co	Honolulu, Hawaii	100 per cent owned by Libby, McNeill & Libby, of Honolulu, Ltd., in which Libby, McNeill & Libby (Maine) owns 95.7 per cent.	Pineapples (grown and canned)	
H. W. Trent	Keithsburg, Ill	Buying station for T. D. Winders, Aledo, Ill., a trade name of W. F. Priebe Co.		Butter, eggs, and poultry.
Underwood Market	Chicago, Ill	Trade name of Omaha Packing Co		Lard compounds and substitutes.
Union Condensed Milk Co	do	Trade name of Libby, McNeill & Libby, but inactive at time of report, 1918.		Condensed milk.

[1] Poultry and eggs collected and packed.

Big packer companies producing or handling foods not derived from the slaughtered animal—Continued.

A.—SWIFT & CO.—Continued.

Company.		Relation to big packer.	Foods.	
			Produced and handled.	Handled.
Union Meat Co.	Portland, Oreg.	100 per cent owned by Swift & Co. Western Meat Co. held 20 per cent of the stock in the name of Edw. F. Swift. In March, 1919, the estate of G. F. Swift secured the balance of the stock necessary to complete 100 per cent ownership, and sold the entire stock to Swift & Co.	Lard substitutes and butter.	Poultry, eggs, cheese, apples, cranberries, fish, canned goods, and butterine.
Ute Produce Co.	Ute, Iowa.	Trade name of W. F. Priebe Co.		Butter, eggs, and poultry.
Vermont Supply Co.	Boston, Mass.	100 per cent owned by G. H. Hammond Co., in which Swift & Co. owns 100 per cent.		Butterine.
Western Meat Co.	San Francisco, Calif.	44.5 per cent owned by Swift & Co.; 20.9 per cent, Morris & Co.; 2.6 per cent, Armour & Co.; 1.5 per cent, Wilson & Co., Inc.; 0.2 per cent, The Cudahy Packing Co.	Butter, cheese, lard compounds and substitutes.	Poultry and eggs.
White, Pevey & Dexter Co.	Worcester, Mass.	93 per cent owned by Swift family interests.		Butterine.
B. K. Willard Co.	Chicago, Ill.	Trade name of Libby, McNeill & Libby.		Libby products.
Wilson & Rogers.	Philadelphia, Pa.	100 per cent owned by Libby, McNeill & Libby.		Oleomargarine and other food products.
T. D. Winders Co.	Aledo and Keithsburg, Ill.	Trade name of W. F. Priebe Co.	Butter, eggs, and poultry [1]	

B.—ARMOUR & CO.

Aaron Poultry & Egg Co.	Kansas City, Mo.	50 per cent owned by Armour & Co.	Renovated butter, poultry, and eggs.[1]	
Acme Products Co.	Chicago, Ill.	100 per cent owned by Armour & Co.	Vegetable stearine.	
Alvarado Cotton Oil Mill (not Inc.)	Alvarado, Tex.	Stock "held for the benefit of Armour & Co."	Cottonseed products.	
Anglo-American Provision Co.	Chicago, Ill.	100 per cent owned by Armour & Co.	Butterine.	
Armour & Co.	Bloomer, Wis.		Evaporated and sweetened condensed milk.	
Do.	Boonville, Mo.		Renovated butter, poultry, and eggs.[1]	
Do.	Chicago, Ill.		Butterine, lard substitutes and compounds; jelly, preserves, canned goods, such as beans, soups, chicken, etc.	
Do.	Clinton, Mo.		Renovated butter, poultry, and eggs.[1]	
Do.	Duluth, Minn.		do.[1]	

Do	East St. Louis, Ill		Lard compounds and substitutes	Butterine.
Do	Fort Worth, Tex		do	Do.
Do	Frankfort, Mich		Canned and crushed fruits	
Do	Hamilton, Ont		Lard substitutes and compounds	
Do	Jersey City, N. J		do	
Do	Kansas City, Kans		Butterine, lard substitutes, and peanut butter.	
Do	Mankato, Minn		Renovated butter, poultry, and eggs.[1]	
Do	Mattowan, Mich		Grape juice	
Do	Owosso, Mich		Renovated butter, poultry, and eggs.[1]	
Do	Ridgely, Md		Canned and crushed strawberries	
Do	Rochester, Ind		Creamery and renovated butter, poultry, and eggs.[1]	
Do	Sioux City, Iowa			Lard substitutes and compounds, and butterine.
Do	South Omaha, Nebr		Lard compounds and substitutes	Butterine.
Do	Springfield, Mo		Renovated butter, poultry, and eggs.[1]	
Do	Westfield, N. Y		Grape juice	
Armour Canadian Grain Co	Winnipeg, Canada	100 per cent owned by the Armour Grain Co		Grain.
Armour Grain Co	Chicago, Ill	87 per cent owned by Armour family interests. The remainder of the stock is held by officers of the company.		Do.
Armstrong Packing Co	Dallas, Tex	100 per cent owned by Central Holding Co., in which Armour-Flippen interests own 100 per cent.	Lard substitutes and compounds	
C. E. Blodgett Cheese, Butter & Egg Co.	Marshfield, Wis	51 per cent owned by Armour & Co	Cheese and eggs	
Harold L. Brown Co., Inc.	New York City	60 per cent owned by Armour & Co		Butter, cheese, eggs, and poultry.
H. L. Brown Co	Boston, Mass., Providence, R. I.	Trade name of Armour & Co.[2]		Do.
Buffalo Cereal Co., Inc	Buffalo, N. Y	100 per cent owned by the Armour Grain Co	Cereals	
Chattanooga Oxygen Gas Co	Chattanooga, Tenn	83 per cent owned by Armour & Co. and affiliated with the Lookout Oil & Refining Co.	Vegetable stearine	
Citizens Gin Co	Campbell, Mo	87 per cent owned by East St. Louis Cotton Oil Co., which is 100 per cent owned by Armour & Co.	Cotton oil	
Colorado Packing & Provision Co	Denver, Colo	100 per cent owned by Armour & Co	Lard substitutes and compounds	
Corinth Oil Mill	Corinth, Mo	Trade name of Lookout Oil & Refining Co., which is 83 per cent owned by Armour & Co.		
Cortland Beef Co	Cortland, N. Y	Trade name of Armour & Co		Butter, cheese, and eggs.
East St. Louis Cotton Oil Co	East St. Louis, Ill	100 per cent owned by Armour & Co	Cottonseed products, vegetable stearine, and lard substitutes.	
Eau Claire Creamery	Eau Claire, Wis	59.5 per cent owned by Armour & Co	Creamery butter and ice cream	
Ellis Pond Ice Co	Norwood, Mass	100 per cent owned by Winslow Bros. & Smith Co., in which the Eastern Leather Co. owns 100 per cent. Armour & Co. owns 69 per cent of the latter company.	Ice	

[1] Poultry and eggs collected and packed.

[2] Armour & Co. discontinued the use of this trade name in July, 1918.

Big packer companies producing or handling foods not derived from the slaughtered animal—Continued.

B.—ARMOUR & CO.—Continued.

Company.		Relation to big packer.	Foods.	
			Produced and handled.	Handled.
Enid Poultry & Egg Co	Enid, Okla	50 per cent owned by Aaron Poultry & Egg Co., in which Armour & Co. owns 50 per cent.	Renovated butter, poultry, and eggs.[1]	
The Erie Co	New York City	65 per cent owned by the Armour Grain Co.		Grain.
Export Elevator Co	Buffalo, N. Y	100 per cent owned by the Armour Grain Co.		Do.
Fowler Packing Co	Kansas City, Kans	100 per cent owned by Armour & Co	Lard compounds and substitutes	Butterine.
Fremont Kraut Co	Fremont, Ohio	51 per cent owned by Armour & Co.	Pickles, kraut, etc.	
Friedman Manufacturing Co	Chicago, Ill	75 per cent owned by Armour & Co	Butterine	Lard compounds and substitutes.
Hammond Packing Co	South St. Joseph, Mo.	100 per cent owned by Armour & Co	Lard compounds and substitutes	Butterine.
Hansen Grain Co	Winnipeg, Canada	100 per cent owned by the Armour Grain Co.		Grain.
Independent Salt Co	Chicago, Ill	50 per cent owned by Armour & Co.; 50 per cent owned by Swift & Co.[2]	Salt	
Kentucky Creameries	Louisville, Ky	Trade name of Armour & Co. of Kentucky, which is 100 per cent owned by Armour & Co. of Illinois.	Creamery and renovated butter, poultry, and eggs.[1]	
The A. S. Kininmonth Produce Co.	Winfield, Kans	50 per cent owned by Armour & Co	do.[1]	
Lewellyn Bean Co	Big Rapids, Mich	51 per cent owned by Armour & Co	Canned beans	
Lookout Oil & Refining Co	Chattanooga, Tenn	83 per cent owned by Armour & Co	Cotton-oil products, lard substitutes, and cooking oils.	
London Packing Co	Terre Haute, Ind	50 per cent owned by Armour & Co	Fancy canned and bottled goods, such as tomato ketchup, chili sauce, oyster cocktail, salad dressing, etc.	
Mapl-Flake Mills	Battle Creek, Mich	100 per cent owned by the Armour Grain Co.	Cereals	
Meadow Green Gin Co	Marston, Mo	64 per cent owned by the East St. Louis Cotton Oil Co.	Cotton oil	
Neenah Cheese & Cold Storage Co.	Chicago, Ill	Trade name of Armour & Co		Cheese.
Neola Elevator Co	do	100 per cent owned by the Armour Grain Co.		Grain.
Nicholson Ice & Produce Co	Denison, Iowa	50 per cent owned by Armour & Co., which also has complete management and control of the plant under an agreement with the Nicholson Ice & Produce Co.	Ice, renovated and creamery butter, poultry, and eggs.[1]	
Oakdale Creamery	Oakdale, Calif	Trade name of Armour & Co	Creamery butter	
Pacific Creamery Co	Tempe, Ariz	do	Condensed milk	
Pittsburg Provision & Packing Co.	Pittsburgh, Pa	96 per cent owned by Armour-Allerton interests, Armour & Co., owning 38 per cent and the Allerton family 58 per cent.		Butter, cheese, eggs, butterine, lard compounds and substitutes.
Rome Oil & Fertilizer Co	Rome, Ga	100 per cent held for the benefit of the Armour Fertilizer Works of New Jersey, which is 100 per cent owned by Armour & Co.	Cottonseed products	

Richmond Cotton Oil Co.	Kennett, Mo.	Purchased by the East St. Louis Cotton Oil Co., August, 1917.	do.	
Lowis E. Sands Co. (Inc.)	Albion, N. Y.	66⅔ per cent owned by the Lewellyn Bean Co. prior to Nov. 9, 1918, on which date its interest was disposed of to L. E. Sands.		Beans and grain.
Scottville Produce Co.	Scottville, Mich.	51 per cent owned by the Lewellyn Bean Co.		Grain.
Temple Cotton Oil Mill (not Inc.).	Temple, Tex.	"Held for the benefit of Armour & Co."	Cotton-oil products.	
Vin Fiz Co.	Chicago, Ill.	100 per cent owned by Armour & Co.		Soft drinks, crushed fruits, soda-fountain supplies, and general mercantile business.
T. H. Wheeler Co.	Boston, Mass.	97 per cent owned by Armour & Co.		Poultry, eggs, and butter.
Wisconsin Dairy Products Co.	Stoughton, Wis.	75 per cent owned by Armour & Co.	Condensed and evaporated milk.	

C.—MORRIS & CO.

Barataria Canning Co.	Biloxi, Miss.	67 per cent owned by Morris & Co.	Canned shrimp, oysters, beans, sweet potatoes, and pumpkin.	
Eckerson Co.	Jersey City, N. J.	50 per cent owned by Morris & Co.		Butterine, butter, and eggs.
Forest City Cotton Oil Mills.	Forest City, Ark.	Trade name of Morris & Co.	Cottonseed products.	
Globe Cotton Seed Oil Mills (not Inc.)	Chicago, Ill.	do.	do.	
Greenville Cotton Oil Mills.	Greenville, Tex.	do.	do.	
Holland Butterine Co.	Jersey City, N. J.	100 per cent owned by Morris & Co.	Butterine.	
Jacob Marty Co.	Brodhead, Wis.	50 per cent owned by Morris & Co.	Cheese.	
Modern Gin.	Caddo Mills, Tex.	Operated in connection with the Greenville Cotton Oil Mills.	Cottonseed products.	
Morris & Co.	Chicago, Ill.		Butterine, lard compounds and substitutes.	Poultry and dairy products.
Do.	East St. Louis, Ill.		do.	Do.
Do.	Kansas City, Kans.		do.	Do.
Do.	South Omaha, Nebr.		do.	Do.
Do.	Oklahoma City, Okla.		do.	Do.
Do.	St. Louis, Mo.		do.	Do.
Peerless Packing Co.	Chicago, Ill.	100 per cent owned by Darling & Co., in which the Morris family owns 54.6 per cent.		
Pine Bluff Cotton Oil Mills.	Pine Bluff, Ark.	Trade name of Morris & Co.	Cottonseed products.	
Sherman White & Co.	Fort Wayne, Ind.	52 per cent owned by Morris & Co.	Creamery and renovated butter, ice, poultry, and eggs.[1]	Cheese and butterine.
Smith-Wright Co.	North Williston, Vt.	67.5 per cent owned by Morris & Co. Includes 32.5 per cent owned by Chamberlain & Co., Inc., in which Morris & Co. owns 67 per cent.	Poultry and eggs [1]	
Joseph Stern Sons Co., Inc.	New York City.	100 per cent owned by Morris & Co.		Lard compounds and substitutes.
C. A. Straubel Co.	Green Bay, Wis.	50 per cent owned by Morris & Co.		Cheese.

[1] Poultry and eggs collected and packed.

[2] See Swift & Co., above.

Big packer companies producing or handling foods not derived from the slaughtered animal—Continued.

D.—WILSON & CO., INC.

Company.		Relation to big packer.	Foods.	
			Produced and handled.	Handled.
Alaska Herring & Sardine Co.	Seattle, Wash.	98 per cent owned by the Wilson Fisheries Co., which is 51 per cent owned by Wilson & Co., Inc.	Canned fish.	
Albert Lea Packing Co., Inc.	Albert Lea, Minn.	100 per cent owned by Wilson & Co., Inc.		Lard compounds and substitutes, and butterine.
Alden Banks Fish Co.		100 per cent owned by the Apex Fish Co.	Canned fish.	
Altamont Produce & Packing Co.	Altamont, Ill.	Operated by Wilson & Co., Inc.	Poultry, eggs, and butter[1].	
Apex Fish Co.	Anacortes, Wash.	Acquired by the Wilson Fisheries Co. on Apr. 8, 1919.	Canned salmon.	
Brownie Fish Co.		100 per cent owned by the Apex Fish Co.	Canned fish.	
Drexel Packing Co.	Chicago, Ill.	100 per cent owned by Wilson & Co., Inc.		Butter, eggs, and cheese.
Empire Provision & Produce Co.	do.	100 per cent owned by Wilson & Co., Inc., but reported as practically inactive since June 1, 1917.		Produce.
The Fame Canning Co.	Indianapolis, Ind.	99.8 per cent owned by Wilson & Co., Inc.	Canned vegetables.	
Lisianski Packing Co.	Seattle, Wash.	79 per cent owned by the Wilson Fisheries Co.	Canned fish.	
Migley Fish Co.		100 per cent owned by the Apex Fish Co.	Canned salmon.	
Mississippi Packing Co., Inc.	Natchez, Miss.	100 per cent owned by Wilson & Co., Inc.	Lard compounds and substitutes.	
Morton-Gregson Co. (Del.)	Nebraska City, Nebr.	do.		Canned fruits and vegetables, cheese, and butter.
Pacific Fisheries Corporation.	Seattle, Wash.	99.9 per cent owned by Wilson & Co., Inc.	Canned salmon.	
Paul O. Reymann Co.	Wheeling, W. Va.	100 per cent owned by Wilson & Co., Inc.		Groceries, canned fruits, vegetables, and produce.
T. M. Sinclair & Co., Ltd.	Cedar Rapids, Iowa.	All common stock except 7 directors' qualifying shares owned by the Central Products Corporation, in which Wilson & Co., Inc. owns 100 per cent.	Lard compounds and substitutes.	Butterine, cheese, and poultry.
Sinclair Provision Co.	Portland, Oreg.	All the stock except 3 directors' qualifying shares owned by T. M. Sinclair Co., Ltd.		Canned goods.
St. Peter Produce Co.	St. Peter, Ill.	Operated by Wilson & Co., Inc.		Poultry, eggs, and butter.
J. L. Smiley Co.	Seattle, Wash.	99.5 per cent owned by the Pacific Fisheries Corporation.	Canned fish.	
South Dakota Provision Co.	Sioux Falls, S. Dak.	100 per cent owned by Wilson & Co., Inc.		Canned vegetables, compounds, butter, and cheese.
Superior Fish Co.		100 per cent owned by the Apex Fish Co.	Canned, smoked, salted, and pickled fish.	
Union Lard Corporation.	New York City.	100 per cent owned by Wilson & Co., Inc.	Butter substitutes.	
Wakefield & Co.	Seattle, Wash.	100 per cent owned by the Wilson Fisheries Co.	Canned salmon.	Fish (as brokerage business).
Wilson & Co., Inc.	Cedar Rapids, Iowa.		Renovated butter, poultry, and eggs.[1]	
Do.	Chicago, Ill.		Lard compounds and substitutes, butterine, preserves, and condiments.	

Do	Kansas City, Kans		Lard compounds and substitutes	Butterine.
Do	Mason City, Iowa		Renovated butter, poultry, and eggs.[1]	
Do	New York City		Lard compounds and substitutes	Do.
Do	Ottumwa, Iowa		Renovated butter, poultry, and eggs.[1]	
Do	Red Wing, Minn		do.[1]	
Wilson & Co., Inc. (Calif.)	Los Angeles, Calif		Lard compounds and substitutes	Do.
Wilson & Co., Inc. (Okla.)	Oklahoma City, Okla		Lard compounds and substitutes, renovated butter, poultry, and eggs.[1]	Do.
Wilson & Co., Inc. (Tenn.)	Chattanooga, Tenn	99.3 per cent owned by Wilson & Co., Inc.; remainder directors' qualifying shares.	Lard compounds and substitutes	
Do	Nashville, Tenn		Renovated butter, poultry, and eggs.[1]	
Wilson Fisheries Co. (Del.)	Seattle, Wash	51 per cent owned by Wilson & Co., Inc.	Canned fish	

E.—THE CUDAHY PACKING CO.

American Pumice Co	Chicago, Ill	100 per cent owned by The Cudahy Packing Co	Fruits prepared by the extraction of juices.	
The Cudahy Packing Co. of Maine	Kansas City, Kans		Lard compounds and substitutes, and butterine.	Butter, cheese, eggs, and poultry.
Do	Los Angeles, Calif		Lard compounds and substitutes, and eggs.[2]	Butter, cheese, and poultry.
The Cudahy Packing Co. of Maine (Memphis refinery).	Memphis, Tenn		Lard compounds and substitutes, and refined cottonseed oil.	
The Cudahy Packing Co. of Maine	Omaha, Nebr		Lard compounds and substitutes	Butter, cheese, eggs, and poultry.
Do	Sioux City, Iowa		do	Do.
Do	Wichita, Kans		do	Do.
The Cudahy Packing Co. of Nebraska.	North Salt Lake, Utah		Eggs[2]	Butter, cheese, and poultry.
Dow Cheese Co	Plymouth, Wis	100 per cent owned by The Cudahy Packing Co		Cheese.
Nagle Packing Co	Jersey City, N. J	55 per cent owned by The Cudahy Packing Co	Oleostearine and oleo oil	
The Red Wing Co., Inc	Fredonia, N. Y	99.9 per cent owned by Cudahy family interests	Grape juice, jellies, jams, and other food products.	
Sunlight Produce Co	Winfield, Iowa	100 per cent owned by The Cudahy Packing Co	Butter and eggs[2]	Poultry.
D. E. Wood Butter Co	Evansville, Wis	Acquired by The Cudahy Packing Co. Apr. 1, 1918	Creamery and renovated butter	Poultry and eggs.

[1] Poultry and eggs collected and packed.

[2] Eggs collected and packed.

EXHIBIT V.

PEDDLER CARS ON SECTIONS OF THE SOUTHERN RAILROAD.

[Supplied by the general freight office of the Southern Railroad.]

A.—*Statement of peddler-car routes operated via or in connection with Southern Railroad Lines West, and Alabama & Vicksburg Railroad, November, 1918.*

Shipper.	Origin.	Route.	Break-bulk point.	Run out at—	Re-ice at—	Service.	Back haul.	Box-car service.
Armour & Co..	East St. Louis, Ill.	Southern Railroad lines.	Athens Ga.....	Maysville, Ga.....	Louisville, Ky.; Danville, Ky.; Chattanooga, Tenn.; Atlanta, Ga.	Weekly...	None.....	None.
Do.....	....do.....	....do.....	York, Ala.....	Selma, Ala.....	Jackson, Miss.; Meridian, Miss.	...do.....	From York, Ala., to stations Cuba to West Butler, Ala., inclusive.	From Lilita to Bellamy, Whitfield, and Choctaw, and from York, Ala., to stations Cuba to West Butler, Ala., inclusive.
Do.....	....do.....	....do.....	Gaffney, S. C.....	China Grove, N. C.	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.; Asheville, N. C.; Spartanburg, S. C.	...do.....	None.....	From Gastonia to Dallas, Laboratory, Lincolnton, and Ranle, and from Charlotte to stations Mount Holly to Mooresville, inclusive.
Do.....	....do.....	....do.....	Blacksburg, S. C..	Sumter, S. C.....	Louisville, Ky.; Knoxville, Tenn.; Danville, Ky.; Asheville, N. C.	...do.....	....do.....	From Rock Hill to Ogden, Smith, and Charlotte, also from Catawba Junction to stations Catawba to Edgemoor, inclusive, and from Lancaster to stations Fort Lawn to Great Falls, inclusive.
Do.....	....do.....	Southern Railroad lines, Lexington, Ky., and Chesapeake & Ohio R. R.	Winchester, Ky...	Wayland, Ky.....	Louisville, Ky.; Lexington, Ky.; Paintsville, Ky.	...do.....	....do.....	From Mount Sterling to Rothwell, Ky., also from Moorehead to Clearfield, Ky., also from Hitchins to Grayson, Ky., and from Beaver Creek Junction to Rock Branch and Peach Orchard, Ky.

Do	do	Southern Railroad lines, Hickory, N. C., and Carolina & Northwestern R. R.	Newport, Tenn	Lenoir, N. C	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.; Asheville, N. C.	do	do	From Hickory, N. C., to stations Conover, Newton, Claremont, and Catawba.
Do	do	Southern Ry. lines.	Mount Vernon, Ill.	Cannelton, Ind	Princeton, Ind	do	do	From Mount Vernon to Texico and Kell, also from Browns to stations Bone Gap, West Salem, Grayville, and Parkersburg, also from Browns to Belmont, also from Oakland City to Petersburg, also from Winsol to Muren, also from Hartwell to Hartwell Junction, also from Huntingburg to Jasper, also from Lincoln City to Kercheval, Bradley, Christney, Miller, Ritchies, Rock Hill, and Rockport.
Do	do	Mobile & Ohio R. R., Corinth, Southern Railroad lines.	Corinth, Miss	Stevenson, Ala	Jackson, Tenn., Corinth, Miss.	do	do	From Sheffield to Florence, Ala.
Do	do	Southern Railroad lines.	Ninety-six, S. C	St. Matthew, S. C	Louisville, Ky.; Danville, Ky.; Chattanooga, Tenn.; Atlanta, Ga.; Greenville, S. C.	do	From Alston to Blairs and Shelton; also from Columbia, S. C., to Chester, S. C.	From Newberry to Kiendards, Little Mountain, and Chapin, from Alston to Blairs and Shelton, also from Columbia, S. C., to Chester, S. C., and from Columbia to Pelin, Hagood, and Winsboro, S. C.
Do	do	do	Durham, N. C	Goldsboro, N. C	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.; Asheville, S. C.; Durham, N. C.	do	None	None.
Do	do	do	Danville, Ky	Silerville, Ky	Louisville, Ky.; Danville, Ky.	do	do	From Danville to Lexington, Ky., also from Stearns, Ky., to Kentucky & Tennessee R. R. stations, Worley, Yamacraw, Exodus, and Barthell, Ky.

A.—*Statement of peddler-car routes operated via or in connection with Southern Railroad Lines West, and Alabama & Vicksburg Railroad, November, 1918*—Continued.

Shipper.	Origin.	Route.	Break-bulk point.	Run out at—	Re-ice at—	Service.	Back haul.	Box-car service.
Armour & Co..	East St. Louis, Ill.	Southern Railroad lines.	Newport, Tenn...	Lake Toxaway, N. C.	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.; Asheville, N. C.	Weekly...	None.....	From Asheville, N. C., to Andrews and Black Mountain, also from Hendersonville to Balfour, Palace Siding, Tuxedo, Fiat Rock, Law Siding, Salus, and Tyrone.
Do.....	....do.....	....do.....	Chester, S. C.....	St. Matthew, S. C..	.....do.....	...do.....	.....do.....	Chester, S. C., to Carlisle, S. C.
Do.....	....do.....	....do.....	Mascot, Tenn.....	Bristol, Va.-Tenn.	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.	...do.....	.....do.....	From Morristown to Tate and White Plains, also from Bulls Gap to Rogersville, and from Johnson City to Erwin.
Do.....	....do.....	....do.....	Westminster, S.C..	Union S. C.....	Louisville, Ky.; Danville, Ky.; Chattanooga, Tenn.; Atlanta, Ga.; Greensville, S. C.	...do.....	From Spartanburg, S. C., to Inman, Campbelle, Landrum, from Spartanburg to Simpsonville, Fountain Inn, Owings, and Gray Court.	From Seneca to West Union, Walhalla, Pendleton, and Autun, also from Easley to Pickens, S. C., also from Spartanburg to Inman, Campbelle, Landrum, also to Converse, Clifton, Cowpens, Roebuck, Woodruff, Chesnee, also to Simpsonville, Fountain End, Owings, and Gray Court, and from Lockhart Junction to Lockhart and Kelly.
Do.....	....do.....	....do.....	Oneida, Tenn.....	Glen Alice, Tenn..	Louisville, Ky.; Danville, Ky.	...do.....	None.....	From Oneida to Oneida & Western R. R. and Tennessee railway stations, also from Nemo to Catoosa, and from Harriman Junction to Oliver Springs, Knoxville, and Stephens.

Do		do	Mount Vernon, Ill.	Louisville, Ky	Mount Vernon, Ill.; Princeton, Ind.	do	do	From Browns to Bone Gap, West Salem, and Parkersburg, also from Oakland City to Petersburg, also from Winslow to Muren, also from Hartwell Junction to Hartwell, also from Huntingburg to Tell City, also Corydon Junction to Corydon and Sunshine.
St. Louis Dressed Beef Co.	do	do	Cleveland, Tenn	Bristol, Va.-Tenn	Louisville, Ky.; Danville, Ky.; Chattanooga, Tenn.; Knoxville, Tenn.	do	do	Norfolk and Western R. R. stations from Bristol, and Carolina, Clinchfield & Ohio R. R. stations from Johnson City.
Morris & Co	do	do	Durham, N. C	Goldsboro, N. C	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.; Asheville, N. C.	do	do	None.
Do	do	do	Salisbury, N. C	Charlotte, N. C	do	do	do	On Seaboard Air Line Ry. and Norfolk Southern R. R. south from Charlotte, N. C.
Do	do	do	Marion, N. C	do	do	do	do	On Seaboard Air Line Ry. from Catawba Junction, S. C.
Do	do	do	Centralia, Ill	Huntingburg, Ind.	Centralia, Ill	do	do	None.
Do	do	do	Cleveland, Tenn	Johnson City, Tenn.	Louisville, Ky.; Danville, Ky.; Chattanooga, Tenn.; Knoxville, Tenn.	do	do	To points on Carolina, Clinchfield & Ohio Ry. out of Johnson City, Tenn.
Do	do	Southern Railroad lines, Lexington, Ky., and Chesapeake & Ohio R. R.	Rocky Mount, N. C.	Kingston, N. C	Louisville, Ky.; Ashland, Ky.; Clifton Forge, Va.; Rocky Mount, N. C.	do	do	None.
Do	do	Southern Railroad lines.	Newport, Tenn	Murphy, N. C	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.; Asheville, N. C.	do	do	From Newport to Sunbright and Crestmont, Tenn.
Do	do	do	Hickory, N. C	Chester, S. C	do	do	do	On Seaboard Air Line Ry. south from Lincolnton, N. C.
Do	do	Southern Railroad lines and Carolina & Northwestern R. R.	Asheville, N. C	Edgemont, N. C	do	do	do	None.

A.—*Statement of peddler-car routes operated via or in connection with Southern Railroad Lines West, and Alabama & Vicksburg Railroad, November, 1918*—Continued.

Shipper.	Origin.	Route.	Break-bulk point.	Run out at—	Re-ice at—	Service.	Back haul.	Box-car service.
Morris & Co....	East St. Louis, Ill.	Southern Railroad lines.	Hendersonville, N. C.	Union, S. C.....	Louisville, Ky.; Danville, Ky.; Knoxville, Tenn.; Ashville, N. C.	Weekly.....	None.....	From Hendersonville, N. C., to Hendersonville branch stations.
Do.....	....do.....	Southern Railroad lines and Norfolk Southern R. R.	Simpson, N. C....	Wendell, N. C.....	.....do.....	...do.....	...do.....	None.
Swift & Co.....	.....do.....	Southern Railroad lines via Mount Vernon, Ill., and Chicago & Eastern Illinois R. R.	Bakerville, Ill.....	Joppa, Ill.....	No reicing.....	...do.....	...do.....	Do.
Do.....	.....do.....	Southern Railroad lines.	Mount Vernon, Ill.	Rockport, Ind....	Mount Vernon, Ill..	...do.....	...do.....	From Browns to Bone Gap, West Salem, Parkersburg, and Calhoun, Ill.; also from Hartwell Junction to Hartwell, Ind.; also from Fairfield to Hubbard, Ill.
Do.....	.....do.....	.....do.....	Shelbyville, Ky...	Walton, Ky.....	Louisville, Ky.; Lexington, Ky.	...do.....	...do.....	None.
Do.....	.....do.....	.....do.....	Centralia, Ill.....	Jasper, Ind.....	Mount Vernon, Ill..	...do.....	...do.....	From Browns to Bone Gap, West Salem, Parkersburg, and Calhoun, Ill., also from Fairfield, Ill., to Hubbard, Ill.
Do.....	.....do.....	.....do.....	.....do.....	Cannelton, Ind....	.....do.....	...do.....	...do.....	From Lincoln City, Ind., to Christney, Rock Hill, Rockport, Pattenville, and Grandview, Ind.
Do.....	.....do.....	Southern Railroad lines, Emory Gap, Tenn., and Tennessee Central R. R.	Somerset, Ky.....	Billbrey, Tenn....	Louisville, Ky.; Somerset, Ky.	...do.....	...do.....	From Oneida, Tenn., to Tennessee Ry. stations, and from Stearns, Ky., to Kentucky & Tennessee Ry. stations.
Do.....	.....do.....	Southern Railroad lines.	Shelbyville, Ky...	Rockwood, Tenn..	Louisville, Ky.; Danville, Ky.	...do.....	...do.....	From Shelbyville, Ky., to Louisville & Nashville R. R. stations.

Do	do	do	Clinton, Tenn.	Fonde, Ky.	Louisville, Ky.; Somerset, Ky.	do	do	From Jellico, Tenn., to points on Louisville & Nashville R. R.; also from Cold Creek to Briceville and Lafollette, Tenn.
Do	do	do	Francisco, Ind.	Danville, Ky.	Huntingburg, Ind.	do	do	From Winslow to Arthur, Ind., and from Hartwell to Augusta, Ind., and from Huntingburg, Ind., to Jasper, Dale, and Ferdinand, and from Corydon Junction to Corydon, Ind.
Armour & Co.	do	Mobile & Ohio, Meridian, Miss., and Southern Railroad lines.	On New Orleans & Northeastern R. R., south of Meridian, Miss.	On New Orleans & Northeastern R. R.	Where necessary	do	do	None.
Wilson & Co.	Chicago, Ill.	Illinois Central R. R., Corinth, Miss., and Southern Railroad lines.	Corinth, Miss.	Huntsville, Ala.	Corinth, Miss., Sheffield, Ala.	do	do	Do.
Do	do	Cincinnati, Ohio, and Southern Railroad lines.	Georgetown, Ky.	Cincinnati, New Orleans & Texas Pacific R. R., south of Lexington, Ky.	Lexington, Ky., or Danville, Ky.	do	do	Do.
Swift & Co.	East St. Louis, Ill.	Southern Railroad lines.	Lawrenceburg, Ky.	Cincinnati, New Orleans & Texas Pacific Railroad, north of Lexington, Ky.	Lexington, Ky.	do	do	Do.
Cudahy Packing Co.	Memphis, Tenn.	do	Tuscumbia, Ala.	Parish, Ala.	No reicing	do	do	Do.
Do	do	Mobile & Ohio R. R., Meridian, Miss., and Alabama & Vicksburg R. R.	Meridian, Miss.	Jackson, Miss.	No reicing (carries only salt and curod meats).	do	do	Do.
Morris & Co.	East St. Louis, Ill.	do	Meehan Junction, Miss.	Edwards, Miss.	Jackson, Tenn. (on Mobile & Ohio R. R.)	do	do	Do.
Wilson & Co.	Kansas City, Mo.	Frisco, Birmingham, and Southern Railroad lines.	Moundsville, Ala.	On A. O. S. R. R., south of Moundsville, Ala.	No reicing	do	do	Do.
Swift & Co.	East St. Louis, Ill.	Mobile & Ohio R. R., Meridian, Miss., Southern Railroad lines.	Meridian, Miss.	Selma, Ala.	do	do	do	Do.

A.—*Statement of peddler-car routes operated via or in connection with Southern Railroad Lines West, and Alabama & Vicksburg Railroad, November, 1918*—Continued.

Shipper.	Origin.	Route.	Break-bulk point.	Run out at—	Re-ice at—	Service.	Back haul.	Box-car service.
Swift & Co.....	East St. Louis, Ill.	Frisco, Birmingham, Ala., Southern Railroad lines.	Newberry, S. C...	On Southern Railroad, beyond Newberry, S.C.	Where necessary....	Weekly.....	None.....	None
Do.....	....do.....	Mobile & Ohio R. R., Columbus, Miss., and Southern Railroad lines.	Columbus, Miss...	Littleton, Ala.....	No reicing.....	...do.....	...do.....	Do.
Do.....	....do.....	Mobile & Ohio R. R., Tuscaloosa, Ala., and Southern Railroad lines.	Akron, Ala.....	On York branch of Southern Railroad.	On Mobile & Ohio R. R.	Trimonthly.	From Marion Junction, Ala., to Akron, Ala.	Do.

B.—*List of peddler cars in operation on the Southern Railroad Co.'s lines for distribution of packing-house products in southeastern and Carolina territory, November, 1918.*

Shipper.	Origin.	Break bulk.	Run out.	Number cars per week.	Reicing points.	Remarks.
Armour & Co.....	St. Louis, Mo.....	Durham, N. C.....	Goldsboro, N. C.....	1	Danville, Knoxville, Asheville, Spencer.	
Do.....	....do.....	....do.....	Raleigh, N. C.....	2	....do.....	
Do.....	....do.....	Spencer, N. C.....	Charlotte, N. C.....	1	....do.....	
Do.....	....do.....	Greenwood, S. C...	St. Mathews, S. C...	1	Not known.....	Extra haul via Greenwood.
Do.....	....do.....	Chester, S. C.....	Columbia, S. C.....	1	....do.....	
Do.....	....do.....	Westminster, S. C...	Union, S. C.....	2	Danville, Chattanooga, Atlanta, Greenville.	Extra haul via Atlanta to Union.
Do.....	....do.....	Spartanburg, S. C...	....do.....	1	Danville, Knoxville, Asheville.....	
Do.....	....do.....	....do.....	Charlotte, N. C.....	1	....do.....	
Do.....	....do.....	Lula, Ga.....	Athens, Ga.....	1	Danville, Atlanta.....	
Do.....	....do.....	Asheville, N. C.....	Morganton, N. C....	1	Danville, Knoxville, Asheville.....	
Do.....	....do.....	....do.....	A. & S. division....	1	....do.....	
Do.....	....do.....					

Do	do	Knoxville, Tenn	Bristol, Tenn	1		Shipments for points east of Morristown transferred at Knoxville to packing cars.
Do	Fort Worth, Tex	Greensboro, N. C	Charlotte, N. C	1	Birmingham, Atlanta, Greenville	Back haul Greensboro to Charlotte.
Morris & Co	St. Louis, Mo	Durham, N. C	Goldsboro, N. C	1	Danville, Knoxville, Asheville, Spencer.	
Do	do	Raleigh, N. C	Wilson, N. C	1	do	
Do	do	Charlotte, N. C	Blacksburg, S. C	1	do	
Do	do	Spartanburg, S. C	Union, S. C	1	Danville, Knoxville, Asheville	
Do	do	Asheville, N. C	A. & S. division	1	do	
Do	do	do	Murphy, N. C	2	do	
Do	do	Hot Springs, N. C	do	1	do	
Do	do	Rutherfordton, N. C	Camden, S. C	2	do	
Do	do	Asheville, N. C	Lenoir, N. C	1	do	
Do	do	Newton, N. C	Gastonia, N. C	1	do	
Do	do	Gastonia, N. C	Chester, S. C	1	do	
Swift & Co	do	Cleveland, Tenn	Bristol, Tenn	1		Shipments for points east of Morristown transferred at Knoxville to packing cars.
Do	Chicago, Ill	Winston-Salem, N. C.	Mount Airy, N. C	1	Louisville, Danville, Knoxville, Asheville.	
Do	do	Salisbury, N. C	Greensboro, N. C	1	Louisville, Danville, Knoxville, Asheville, Spencer.	
Wilson & Co	do	Knoxville, Tenn	Bristol, Tenn	1		Do.
Cudahy Packing Co	Kansas City, Mo	Westminster, S. C	Hodges, S. C	1	St. Louis, Danville, Chattanooga, Atlanta, Greenville.	Extra haul via Atlanta.
Dold Packing Co	Buffalo, N. Y	Spencer, N. C	Blacksburg, S. C	1	Potomac Yard, Spencer	
Kingan & Co	Richmond, Va	Chester, S. C	Columbia, S. C	1	Cured meat not reiced	
Do	do	Lexington, S. C	Bamburg, S. C., (via Augusta).	1	do	Extra haul via Augusta.
Do	do	Charlotte, N. C	Blacksburg, S. C	1	do	
Do	do	Greenville, S. C	Greenwood, S. C	1	do	Shipments for points on main line transferred at Greenville to packing cars.
Do	do	Salisbury, N. C	Bedin, N. C	1	do	
Do	do	Hickory, N. C	Bridgewater, N. C	1	do	
Do	do	Statesville, N. C	Asheville, N. C	1	do	

EXHIBIT VI.

SOURCES AND METHODS USED IN COMPILING COLD-STORAGE TABLES.

Tables 16–35 were compiled chiefly from reports received by the Commission from operators of cold-storage plants throughout the United States. Reports were also secured from the Big Five, their subsidiary and affiliated concerns, and from independent meat-packing companies which had any cold-storage facilities of their own. The second set of reports showed, among other things, the commodities belonging to the companies reporting which were held in cold storage on the same dates as those covered by reports from the cold-storage companies. The second set, therefore, served as a valuable check upon the first, and in a considerable number of cases there were discrepancies between the two.

In a few cases the dates for which reports were made by the cold-storage companies were not the same as those for which information was asked. Where the discrepancy amounted to five days or less it was ignored. Where it was more than this but the returns from the big packing companies (referring in particular to Tables 21, 22, 24, and 25) were for the correct date, the latter were used. In a small number of instances it was impossible to make any such adjustment, and here the returns from the cold-storage companies were used even though they were not for the right dates. (There were 13 cases in which returns should have been made for Mar. 31, but were in fact made for dates between Mar. 2, and Apr. 27; 11 in which returns should have been made for July 31, but were made for dates between July 20 and Aug. 17; and 9 in which they should have been made for Nov. 30, 1917, but were made for dates between Oct. 27 and Dec. 8.)

The reports from the packing companies were also used to make necessary readjustments in the reports from the cold-storage companies when the latter were incomplete or not clearly answered. In a few instances the former had to be substituted outright for the latter. In some cases the figures for the capacity of the warehouses, as well as those for the quantity of goods in storage, had to be taken from the returns from the packing companies. In such cases the capacity was assumed to be the same as the space occupied on the one of the three dates for which the figures were largest. Instances of this sort, however, were so very few that the general results can not be appreciably affected. The reports on commodities in cold storage were made in the customary units of pounds, cases, boxes, etc., and to show the extent to which the cold-storage facilities of the country were occupied it was necessary to convert such data into cubic feet. Much

labor was spent in visits to cold-storage plants and in conference and correspondence with specialists on cold storage. As a result conversion factors were obtained for the different commodities. These were, of course, made to include allowances for aisles, overhead space, and the like.

The commodities for which returns were made: Dried fruits, potatoes, onions, cabbage, apples, butter, cheese, eggs, frozen eggs, poultry, frozen fish (salt water and fresh water), beef (fresh), pork (fresh), mutton (fresh), cured beef, dry salt pork, pickled pork, and lard.

EXHIBIT VII.

BIG PACKERS' POULTRY AND EGG-PACKING PLANTS, NAMES OF COMPANIES OPERATED UNDER, RELATION OF COMPANIES TO PACKERS, LOCATIONS OF PLANTS BY STATE GROUPINGS, AND BUYING STATIONS, 1918.

(For produce houses which handle only, as well as those which manufacture, see Exhibit IV.)

[Products reported as bought by stations are designated by letters: C.=cream; Ch.=cheese; P.=poultry; B.=butter; E.=eggs.]

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location, and name under which operated.	Products bought.
			Maine. *New Hampshire.* *Vermont.*		
Swift	H. L. Handy Co	60 per cent owned by Swift & Co	*Massachusetts.* Springfield [1]	Quincy, Ill. (Davis-Cleaver Produce Co.).	E., B.
			Rhode Island. *Connecticut.*		
Armour	Cortland Beef Co	Trade name of Armour & Co	*New York.* Cortland		
Cudahy	The Cudahy Packing Co		New York City		
Do	do		*New Jersey.* Jersey City		
Do	do		*Pennsylvania.* Philadelphia		
			Delaware. *Maryland.* *Virginia.*		
Do	do		*District of Columbia.* Washington		

			West Virginia. *North Carolina.* *South Carolina.* *Georgia.* *Florida.*		
			Ohio.		
Swift	Swift & Co.		Defiance	Napoleon[1]	P., E., B.
Morris	The Gray & White Co.	16 per cent of voting stock owned by Morris & Co.	Tiffin	Forest[1]	(5)
				North Baltimore[1]	(5)
				Clyde[1]	(5)
			Kenton		
			Indiana.		
Swift	Swift & Co.		Kokomo		
			Marion	Alexandria (C. W. Casper)	C., P., E.
				Wabash (J. W. Helmet)	C., P., E.
				Hartford City (W. H. Clingenpeel)	C., P., E.
				Gaston (Earl Jackson)	C., P., E.
Armour	Armour & Co.		Rochester	Akron[4]	B., C., E., P.
				Mentone[4]	B., C., E., P.
				North Manchester[4]	B., C., E., P.
				Rochester[4]	B., C., E., P.
				Warsaw[4]	B., C., E., P.
				Bourbon[4]	B., C., E., P.
				Denver[4]	B., C., E., P.
				Fulton[4]	C., P., E., B.
				Kewanno[4]	C., P., E., B.
				Milford[4]	C., P., E., B.
				New Paris[4]	C., P., E., B.
				Telma[4]	C., P., E., B.
				Tippecanoe[4]	C., P., E., B.
				Lipton[4]	C., P., E., B.
				Walkerton[4]	C., P., E., B.
Morris	Sherman White & Co.	52 per cent of voting stock owned by Morris & Co.	Fort Wayne	Peru (Sherman White & Co.)	B., C., E.
				Warsaw (Sherman White & Co.)	P., B., E., C.
				Pennville (F. M. Whisler)	P., E., B.
			Illinois.		
Swift	Swift & Co.		Decatur	Mount Vernon (O. J. Hollowell)	C., P., E.
	W. H. Schreitling	Trade name of W. F. Priebe Co.	Monmouth	Alpha (W. H. Schreitling)	P., E., B.
	Martin Schulze	do	Bushnell	Adair (E. Juneman)	P., E., B.
				Havana (G. W. Murphy)	P., E., B.
				Vermont (Guy Corbett)	P., E., B.
	W. A. Schwartz Produce Co.	do	Lanark	Milledgeville (W. A. Schwartz Produce Co.)	P., E., B.
				Polo (W. A. Schwartz Produce Co.)	P., E., B.
				Stockton (W. A. Schwartz Produce Co.)	P., E., B.

[1] Swift & Co. reported this company as operating a general produce plant.
[2] Name of operating agency not reported.
[3] Products purchased through buying stations not reported.
[4] Names of operating agencies for the stations of the Rochester plant not reported.

Big packers' poultry and egg-packing plants, names of companies operated under, relation of companies to packers, locations of plants by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location, and name under which operated.	Products bought.
			Illinois—Continued.		
Swift	T. D. Winders	Trade name of W. F. Priehe Co.	Aledo	Keithsburg (T. D. Winders)	P., E., B.
	Frank Grampp & Co	do	Princeton	Manlius (Fred Roake)	P., E., B.
				Neponset (E. L. Mear)	P., E., B.
	L. G. Grampp Produce Co	do	Sterling	Tiskilwa (Chas. Blessing)	P., E., B.
				Amboy [1]	P., E., B.
				Dixon [1]	P., E., B.
				Franklin Grove [1]	P., E., B.
				Hooppole [1]	P., E., B.
				Tampico [1]	P., E., B.
				Walnut [1]	P., E., B.
				Rochelle [1]	P., E., B.
	Centralia Butter Co	Bulk of butter sold through W. F. Priehe Co.	Centralia	Wayne City (H. C. Garner)	C., P.
				Bluford (Harry Snodsmith)	C., P.
				Sparta (Chas. Yehling)	C., P.
				Oakdale (R. P. Kirkpatrick)	C., P.
				Evansville (Otto Heck)	C., P.
				Flora (A. M. Bradsher)	C., P.
				Bridgeport (W. C. Green)	C., P.
				Keenes (W. W. Door)	C., P.
				Walsh (Adam Muir)	C., P.
	Morrison Produce Co	Output sold under contract to W. F. Priehe Co.	Morrison		
	Patterson & Plunkett	do	New Windsor		
			Viola	Preemption (B. David)	P.
Wilson	Altamont Produce & Packing Co	Operated by Wilson & Co., Inc.	Altamont	St. Peter (St. Peter Produce Co.)	P., E., B.
			Michigan.		
Swift	Swift & Co		Alma	Merrill (P. J. Haley)	C., P., E., B.
				Owasso (F. A. Patch)	C., P., E., B.
				St. Louis (Geo. Gray)	C., P., E., B.
				Edmore (Geo. Wager)	C., P., E., B.
				Elsie (H. R. Hayes)	C., P., E., B.
			Cadillac	East Jordon (F. H. Bennett)	E., C.
				Lake City (Swift & Co.)	P., E., C.
				McBain (Joe Martz)	E., C.
Armour	Armour & Co		Owasso	Stanwood (A. Cooley)	P., E., C.

			Wisconsin.		
Swift	Pauly & Pauly Cheese Co	About 80 per cent of its cheese sold to Swift & Co. in 1917.	Manitowoc	Green Bay [1]	Ch., E.
				Marathon [1]	Ch., E.
				Edgar [1]	Ch., E.
				Sturgeon Bay [1]	Ch., E.
				Sawyer [1]	Ch., E.
Armour	C. E. Blodgett Cheese, Butter & Egg Co.	51 per cent owned by Armour & Co	Marshfield	Grand Rapids [1]	Ch., E.
				Osceola [1]	Ch., E.
				New Richmond [1]	Ch., E.
			Minnesota.		
Swift	Swift & Co		South St. Paul [2]	Montgomery [1]	([3])
				Cannon Falls [1]	([3])
				Sauk Center [1]	([3])
				Brooten [1]	([3])
				Kenyon [1]	([3])
	W. F. Priebe Co	100 per cent owned by Swift & Co	Waseca		
Armour	Armour & Co		Duluth		
			Mankato		
Morris	Smith-Wright Co	67.5 per cent owned by Morris & Co	Albert Lea	Waldorf [1]	P., E.
				Mattawan [1]	P., E.
				Northwood, Iowa [1]	P., E.
Wilson	Wilson & Co., Inc		Red Wing		
Cudahy	The Cudahy Packing Co		Duluth		
			Minneapolis		
			St. Paul		
			Iowa.		
Swift	Swift & Co		Dubuque	Bellevue (Geo. Kosneman)	C., P., E.
				Caledonia, Minn. (Solberg & Gran)	C., P., E.
				Dyersville (C. H. Westermeyer)	C., P., E.
				Harpers Ferry (Geo. F. Cota)	C., P., E.
				McIntire (B. C. Diffenbaugh)	C., P., E.
				Readstown, Wis. (J. C. Jardon)	C., P., E.
			Keokuk	Douds (Fred Huston)	C., P., E.
				Donnellson (E. M. Hennies)	P., B., E.
			Ottumwa	Fairfield (C. B. McPeak)	B., C., P., E.
				North English (R. A. Brawner)	B., C., P., E.
			Clarinda	Coin (M. H. Eberle)	C., P., E., B.
				Ellston (M. O. Marker)	C., P., E., B.
				Elmo, Mo. (Carl Shelton)	C., P., E., B.
				Essex (Russel England)	C., P., E., B.
				Shenandoah (E. N. Gardner)	C., P., E., B.
				Skidmore, Mo. (W. K. Zook)	C., P., E., B.
				Shambaugh (J. S. Kinney)	P., B., E.

[1] Name of operating agency not reported.
[2] Swift & Co. reported this company as operating a general produce plant.
[3] Products purchased through buying stations not reported.

Big packers' poultry and egg-packing plants, names of companies operated under, relation of companies to packers, locations of plants by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location, and name under which operated.	Products bought.
			Iowa—Continued.		
Swift	Swift & Co.		Iowa Falls	Ackley (E. W. Meyer)	C., E.
				Barnum (Jno. Morrison)	C., E.
				Bode (Swift & Co.)	C., E.
				Blairsburg (E. E. Ashpole)	C., E., P.
				Buffalo Center (Fred Miller)	C., E.
				Eldora (Swift & Co.)	C., E., P.
				Fonda (C. H. Phelps)	C., E., P.
				Iowa Falls (Swift & Co.)	C., E., P.
				Owasa (A. H. Gatton)	C., E., P.
				Radcliffe (O. Rerom)	C., E., P.
				Williams (Swift & Co.)	C., E., P.
			Clinton	Chelsea (J. E. Prusha)	P., E., B., C.
				Center Point (J. A. Featherkile)	P., E., B., C.
				Erie, Ill. (H. E. Wolover)	P., E., B., C.
				Guernsey (C. Sutphin)	P., E., B., C.
				Hartwich (P. S. Warnick)	P., E., B., C.
				Keystone (Peter Hansen)	P., E., B., C.
				Wheatland (A. J. Meiers)	P., E., B., C.
			Creston	Spaulding (Mrs. B. E. Livingston)	C., E., P.
				Greenfield (R. G. Jones)	C., E., P.
				Fontanelle (Albert Chew)	C., E., P.
				Bridgewater (E. B. Charles)	C., E., P.
				Massena (I. D. Carnett)	C., E., P.
				Cumberland (H. H. Howell)	C., E., P.
				Macksburg (Ross & Lillard)	C., E., P.
				Zion (G. W. McCrackin)	C., E., P.
				Cumberland (Wm. Waters)	C., E., P.
				Osceola (John Cook)	C., E., P.
				Afton (Harbour & Son)	C., E., P.
				Bedford (H. W. Little & Co.)	C., E., P.
				Pickering, Mo. (Walfers Mercantile Co.)	C., E., P.
				Maryville, Mo. (Henry Cook)	C., E., P.
				Arkoe, Mo. (R. R. Smith)	C., E., P.
				Barnard, Mo. (A. J. Price)	C., E., P.
				Fillmore, Mo. (T. F. Lilley)	C., E., P.
				Rosendale, Mo. (J. S. Alldredge)	C., E., P.
				Conway (J. E. Watkins)	C., E., P.

				Prescott (Prescott Produce Co.)	C., E., P.
				Corning (Swift & Co.)	C., E., P.
				Nodaway (C. E. Bontrager)	C., E., P.
				Stanton (E. E. Mallenhoff)	C., E., P.
				Stanton (J. E. Bridges)	C., E., P.
				Red Oak (F. D. McClure)	C., E., P.
				Elliott (Frank Tuttle)	C., E., P.
				Villisca (Lewis Bros.)	C., E., P.
				Nevinville (F. C. Bartlett)	C., E., P.
				Creston (Bassett & Roberts)	C., E., P.
	W. F. Priebe Co	100 per cent owned by Swift & Co.	Humboldt	Algona [1]	P., E., B.
				Burt [1]	P., E., B.
				Lake Mills [1]	P., E., B.
			Hampton		
	Atlantic Produce Co	Trade name of W. F. Priebe Co	Atlantic	Audubon (Audubon Produce Co.)	P., E., B.
				Casey (Atlantic Produce Co.)	P., E., B.
				Earlham (Earlham Produce Co.)	P., E., B.
				Harlan (Harlan Produce Co.)	P., E., B.
				Stuart (Atlantic Produce Co.)	P., E., B.
	Manning Produce Co	do	Manning	Jefferson (W. B. Parrott Co.)	P., E., B.
				Ute (Ute Produce Co.)	P., E., B.
	W. B. Parrott Co	do	Carroll	Onawa (W. B. Parrott Co.)	P., E., B.
	W. F. Priebe Co	100 per cent owned by Swift & Co.	Muscatine	Wilton [1]	P., E., B.
	Sac City Produce Co	Output sold to W. F. Priebe Co.	Sac City		
	Western Packing Co	Branch of W. F. Priebe Co.	Spirit Lake	Milford (J. M. George)	C., E.
				Montgomery (Mrs. Gergenson)	C., E.
				Harris (Alex King)	C., E.
				Worthington (J. W. Shut)	C., E.
				Sanborn (A. E. Crandell)	C., E.
Armour	Aaron Poultry & Egg Co	50 per cent owned by Armour & Co.	Creston		
			Leon		
	Nicholson Ice & Produce Co		Denison	Denison (Berndt & Lorenzon)	C., E.
				Buck Grove (R. Docherty)	P., E., C., B.
				Ida Grove (A. D. Saunders)	C., E.
Wilson	Wilson & Co., Inc		Ottumwa		
			Cedar Rapids		
			Mason City		
Cudahy	Sunlight Produce Co	100 per cent owned by The Cudahy Packing Co.	Sioux City	Norfolk, Nebr. [1]	P., E., B.
			Winfield	Mount Pleasant [1]	P., E., B.
			Missouri.		
Swift	F. M. Stamper Co	5¼ per cent owned by W. F. Priebe Co.	Moberly	Orrick (F. M. Stamper Co.)	E., P.
				Hardin (W. A. Templeton & Co.)	C., E., P.
				Norborne (Norborne Produce Co.)	P., E., C.
				Moulton, Iowa (Harley Horn)	C., E., P.
			Carrollton	Carrollton (M. C. Haughn)	P., E.
	H. E. Stone	Branch of F. M. Stamper Co.	Centralia	Columbia (N. W. Burton)	P., E.
				Sturgeon (W. F. Keith)	P. E.

[1] Name of operating agency not reported.

Big packers' poultry and egg-packing plants, names of companies operated under, relation of companies to packers, locations of plants by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location, and name under which operated.	Products bought.
			Missouri—Continued.		
Swift	L. W. Brockman & Co.	Branch of F. M. Stamper Co.	Fayette	Boonville (A. J. Bozarth)	P., E.
	Marshall Produce Co.	do	Marshall	Slater (Slater Produce Co.)	P., E.
	A. B. Cole & Sons	Output sold to W. F. Priebe Co.	California	Versailles [1]	P., E., B.
				Tipton [1]	P., E., B.
				Clarksburg [1]	P., E., B.
				Lohman [1]	P., E., B.
				Russelville [1]	P., E., B.
				Enon [1]	P., E., B.
				Eldon [1]	P., E., B.
Armour	Armour & Co.		Boonville	Bagnell [1]	P., E., B.
				Fayette [1]	P., E., B.
				Marshall [1]	P., E., B.
			Clinton	Eldorado Springs [1]	P., E., B.
			Springfield	Exeter [1]	P., E., B.
				Seligman [1]	P., E., B.
				Mountain Grove [1]	P., E., B.
	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Kansas City		
Cudahy	The Cudahy Packing Co.		St. Louis		
			North Dakota.		
			South Dakota.		
Cudahy	The Cudahy Packing Co.		Deadwood		
			Nebraska.		
Swift	Swift & Co.		Lincoln	Bennet (Farmers' Union)	C., P., E.
				Cambridge (F. Grandstaff)	C., P., E.
				Creston (J. Hamling)	C., P., E.
				Crab Orchard (W. F. Madden)	C., P., E.
				Dorchester (Farmers Supply Co.)	C., P., E.
				Elmwood (L. M. Liston)	C., P., E.
				Fairmont (P. N. Frame)	C., P., E.
				Firth (H. Obbink)	C., P., E.
				Farwell (G. A. Dilla)	C., P., E.
				Filley (J. J. White)	C., P., E.
				Fairbury (T. Thompson)	C., P., E.

				Genoa (J. C. Johnson)	C., P., E.
				Humboldt (C. Mann)	C., P., E.
				Johnson (Johnson Produce Co.)	C., P., E.
				Murphy (Lee Lewis)	C., P., E.
				Osceola (Farmers' Union)	C., P., E.
				Union (J. J. Richardson)	C., P., E.
				Western (J. E. Nickel)	C., P., E.
Armour	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Columbus		
			Fremont		
			Kansas.		
Swift	Swift & Co.		Sabetha		
			Wichita	Kiowa (Chas. Erskine)	P., C.
				Milton (A. D. Wood)	P., C.
				Woodward, Okla. (H. R. Brockelman)	P., C.
			Hutchinson	Kingman (Swift & Co.)	P., E., B., C.
Armour	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Fredonia		
			Hutchinson		
			Kiowa		
			Wellington		
			Wichita		
	A. S. Kininmonth Produce Co.	do	Winfield	Argonia (Jim Copeland)	C., E., P.
				Burden (J. E. Galyon)	C., E., P.
				Conway Springs (L. J. Barnum)	C., E., P.
				Cambridge (J. E. Davis)	C., E., P.
				Douglas (C. A. Carlman)	C., E., P.
				Isahel (N. J. Bentley)	C., E., P.
				Rock (R. E. Kunkel)	C., E., P.
				Winfield (Cairns & Baugh)	C., E., P.
			Kentucky.		
Armour	Kentucky Creameries	Trade name of Armour & Co.	Louisville	Pleasureville (Kentucky Creameries)	P., E., B., C.
				Shelbyville (Kentucky Creameries)	P., E., B., C.
				La Grange (Kentucky Creameries)	P., E., B., C.
				Elizabethtown (Kentucky Creameries)	P., E., B., C.
				Taylorsville (Kentucky Creameries)	P., E., B., C.
				New Albany, Ind. (Kentucky Creameries)	P., E., B., C.
			Tennessee.		
Wilson	Wilson & Co., Inc.		Nashville	Portland [1]	P., E., B.
			Alabama. Mississippi. Louisiana.		
			Texas.		
Swift	Swift & Co.		Fort Worth	Amarillo [1]	P., E., B.

[1] Name of operating agency not reported.

Big packers' poultry and egg-packing plants, names of companies operated under, relation of companies to packers, locations of plants by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Oklahoma.		
Armour	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Chickasha		
			Enid		
			Woodward		
	Enid Poultry & Egg Co.	50 per cent owned by Aaron Poultry & Egg Co.	Enid		
Wilson	Wilson & Co., Inc.		Oklahoma City	Altus [1]	P., E., B.
			Arkansas.		
			Montana.		
			Wyoming.		
			Colorado.		
Swift	Swift & Co.		Denver	Stratton, Nebr. (E. L. Strayer)	E., B., C.
			New Mexico.		
			Arizona.		
			Utah.		
Cudahy	The Cudahy Packing Co.		North Salt Lake		
			Nevada.		
			Idaho.		
			Washington.		
Cudahy	The Cudahy Packing Co.		Seattle		
			Oregon.		
Swift	Union Meat Co.	100 per cent owned by Swift & Co.	Portland	Junction City (W. F. Nielson)	B., E., P., C.
				Aurora (P. S. Will)	B., E., P., C.
				Yoncalla (C. H. Burkholder)	B., E., P., C.
				McMinnville (D. C. Robbins)	B., E., P., C.

				Silverton (F. C. Dunlap)	B., E., P., C.
				Sheridan (C. H. Hauser)	B., E., P., C.
				Woodburn (C. V. Coynyne)	B., E., P., C.
				Willamina (J. H. Robison)	B., E., P., C.
				Amity (R. R. Massey)	B., E., P., C.
				Halsey (L. M. Byerly)	B., E., P., C.
				Goshen (M. D. Capenhauer)	B., E., P., C.
				Dayton (R. W. Kreitz)	B., E., P., C.
Cudahy	The Cudahy Packing Co		do	Goldendale, Wash. (Tibbs & Lawler)	B., E., P., C.
			California.		
Swift	Western Meat Co	78.7 per cent owned by Big Five: Swift, 44.5 per cent; Armour, 2.6 per cent; Morris, 29.9 per cent; Wilson, 1.5 per cent; Cudahy, 0.2 per cent.	San Francisco	Patterson [1]	P., E.
				Penngrove [1]	E.
				Valley Ford [1]	E.
Cudahy	The Cudahy Packing Co		do		
			Los Angeles		

[1] Name of operating agency not reported.

EXHIBIT VIII.

TRADE ESTIMATES OF PACKER CONTROL OVER POULTRY AND DAIRY PRODUCTS.

[For additional estimates see Chapters III and IV.]

Martin, Walt & Co., wholesale commission merchants in butter, eggs and poultry, Memphis, Tenn., state that in the past few years their business has fallen off more than 60 per cent, which they attribute to the big business firms, among which the five packers are important factors in the handling of produce.

Gridley, Maxon & Co., wholesalers and jobbers, Chicago, say that the big packing houses are getting the business and that in poultry it is only a question of time when they will have it all.

The S. A. D. Parker Co., wholesale dealers in poultry, eggs, and butter, Norfolk, Va., state that the packers are gradually acquiring the great bulk of the egg, poultry, and butter business.

The Fidelity Fruit & Produce Co., Atlanta, Ga., reports that until 1916 many of the local produce dealers were also extensive dealers in poultry and eggs, but the Big Five have gradually taken the business away from them until now the packers together handle probably 75 per cent of the poultry and 90 per cent of the eggs sold in the Atlanta market.

The statement of McCullough Bros., wholesale dealers in produce, Atlanta, Ga., made independently of the preceding statement, is that the packers together handle 75 per cent of the poultry and 85 per cent of the eggs sold in that market.

H. F. Battermen, of Battermen & Koelling, poultry dealers, Chicago, says that the big packers are cutting into the poultry business very materially. At present about 66 per cent of the Chicago trade is sold by the Big Five.

Augustus J. Bartlett, wholesale dealer in butter, cheese, eggs, and poultry, Boston, Mass., says that the packers are cutting into the business of the independents constantly.

H. R. Aiken, jobber and wholesaler of butter, eggs, and poultry, Philadelphia, Pa., says that the packers are getting control of the country shippers or forcing them out of business and that very few small independent shippers are left.

George Collins, jobber in dressed poultry, Philadelphia, Pa., says that the packers have become so large in poultry business that the only chance for a small dealer in the poultry trade is to do a scalping business, and estimates that they have injured the independent poultry dealers in that city until they are doing only one-third of their former business. He expects the meat packers to drive all independents out of business.

Robert Ray, president of the Farm Products Exchange Co., Wichita, Kans., says that over 90 per cent of the poultry and egg business in the Wichita territory is now absolutely in the hands of the packers.

Carl Nelson, jobber and packer of poultry, butter, and eggs, Hutchinson, Kans., says that he is the only independent buyer and distributor of eggs in that city, where formerly there were many prosperous independent dealers. He says that Swift & Co. have secured the business.

Marshall, Jordan & Keith, wholesale produce dealers, Birmingham, Ala., report that the Big Five have the bulk of the trade there on eggs; that seven or eight years ago their firm had a good business in eggs, but that it has gradually dropped off until it is now practically nothing. Mr. Keith, of the firm, says that the packers have practically all the cheese business in Birmingham, and about two-thirds of the egg business, and all the frozen-poultry business.

E. V. Mandel & Co., wholesale produce, Louisville, Ky., reports that in its immediate section Armour & Co., through ownership of the Kentucky Creameries Co., Louisville, Ky., and the Kentucky Creameries Co., New Albany, Ind., is, in its opinion, the biggest factor in eggs and poultry.

Dan B. Dougherty, of the Latshaw Feerst Co., Pittsburgh, Pa., says that the packers have become such large factors in the handling of butter and eggs that it is possible for them to manipulate the market at will. He believes that they could force the independent dealers out of business if they cared to do so.

W. J. Hartzell Co., 205 Perry Street, Pittsburgh, Pa., says that the packers "absolutely control the egg business" and that they make the price and eventually, in its opinion, will monopolize the poultry business.

F. K. McFall, of Gleason & Lansing, wholesale dealers in butter and eggs, Buffalo, N. Y., gives it as his opinion that the meat packers control the supply of eggs at the present time throughout the United States, and cites as evidence that the British ministry in the summer of 1918 went into the open market and endeavored to buy 700 cars of eggs, but were able to secure but little in this way.

Mr. Bode, vice president of Reid, Murdock & Co., Chicago, wholesale grocers, says: "I am sure that they [the packers] control the cheese business of the United States. I think they control the creamery butter business of the United States. They will eventually control the rice business of the United States. I think they are the largest handlers of eggs in the United States. That has all been taken away from somebody."

Mr. Seymour H. Neumann, editor and western manager of the Chicago Produce News, in testimony before the Commission stated that, "according to the best estimates we have from the country—we have to get our reports from shippers, the small shippers, such as you had here yesterday talking to you—Swift & Co. handle 30 per cent of the Missouri, Iowa, Oklahoma, and Texas crop; that is, with their subsidiaries."

EXHIBIT IX.

BIG PACKER (MORRIS[1] EXCEPTED) TONNAGE SALES[2] OF DRESSED POULTRY, EGGS, BUTTER, AND CHEESE, 1915–1918.

A.—SWIFT & CO., 1918.

[Sales for 1915, 1916, and 1917 reported as not available. For branch-house sales for 1916 see text (pp. 156, 164) and Part I of this report, Table 61, p. 233.]

	Poultry (pounds).	Eggs (pounds).[1]	Butter (pounds).	Cheese (pounds).
Total	78,383,000	137,433,000	66,621,000	64,072,000

[1] Approximately 45 pounds are equivalent to one case, or 30 dozens.

B.—ARMOUR & CO.

1.—YEAR ENDING OCTOBER 28, 1916.

[Sales for 1915 reported as not available. Classification of sales is Armour's.]

	Poultry (pounds).	Eggs (pounds).	Butter (pounds).	Cheese (pounds).	Totals (pounds).
Packinghouse direct	184,356	468,046	913,920	822,886	2,389,208
Export	685,331	1,395,816	35,614	1,642,969	3,759,730
Carroute	107,902	739,366	427,022	3,452,962	4,727,252
Total	977,589	2,603,228	1,376,556	5,918,817	10,876,190
Branch houses	13,549,289	36,923,335	24,064,915	26,805,469	101,343,008
Greenwich Street	6,122,427	2,871,245	3,748,466	1,579,391	14,321,529
Total	19,671,716	39,794,580	27,813,381	28,384,860	115,664,537
Owosso	5,455	94,070	42,513	2,165	144,203
Springfield	398,585	52,269	30,956		481,810
Clinton	427,363	34,058	21,234		482,655
Boonville	152,052	29,267	2,454		183,773
Kentucky Creameries Co			253,207		253,207
Neenah Cheese & Cold Storage Co				21,424,727	21,424,727
C. E. Blodgett Cheese, Butter & Egg Co				4,979,040	4,979,040
Aaron Poultry & Egg Co	8,432,624	3,046,328	302,425		11,781,377
Eau Claire Creamery Co			677,001		677,001
Denison	4,085	32,584	8,450		45,119
Total	9,420,164	3,288,576	1,338,240	26,405,932	40,452,912
Grand total	30,069,469	45,686,384	30,526,177	60,709,609	166,993,639

[1] Morris reported sales figures not available. See Part I of this Report, Table 61, p. 233, for branch-house sales for 1916.

[2] The sales given in this exhibit do not include those made by companies or selling agencies controlled through means other than stock ownership by the principal packer company. Sales, for example, made by affiliated companies controlled through stock ownership by the principal family interested in the packer company are not included.

Big packer (Morris excepted) tonnage sales of dressed poultry, eggs, butter, and cheese, 1915–1918—Continued.

B.—ARMOUR & CO.—Continued.

2.—YEAR ENDING OCTOBER 27, 1917.

[Classification of sales is Armour's.]

	Poultry (pounds).	Eggs (pounds).[1]	Butter (pounds).	Cheese (pounds).	Totals (pounds).
Packinghouse direct	291,932	1,207,640	1,011,447	2,225,676	4,736,695
Export and domestic consignment	756,984	365,484	274,352	667,830	2,064,650
Car route	92,347	691,160	501,497	3,169,514	4,454,518
Total	1,141,263	2,264,284	1,787,296	6,063,020	11,255,863
Friedman Manufacturing Co	.....	356,005	2,186,255	545,528	3,086,788
Branch houses	12,257,006	39,315,085	28,431,856	25,585,040	105,588,987
Greenwich Street	5,122,856	2,004,133	4,359,025	871,928	12,357,942
Cortland Beef Co	15,085	422,122	344,089	596,332	1,377,628
H. L. Brown Co., Boston	9,886	493,778	834,935	98,213	1,436,812
H. L. Brown Co., Providence	1,206	410,044	334,504	99,357	845,111
Total	17,406,039	42,645,162	34,304,409	27,250,870	121,606,480
Louisville	381,044	11,400	19,942	87,831	500,217
Owosso	16,767	81,396	27,924	6,655	132,742
Rochester	1,842	8,742	198,142	.....	208,726
Springfield	405,971	15,804	101	.....	421,876
Clinton	415,821	48,760	2,759	.....	467,340
Boonville	101,006	19,236	744	.....	120,986
Denison	33,120	15,147	11,249	.....	59,516
Neenah Cheese & Cold Storage Co. (5/1 to 10/27)	.....	.....	.....	13,383,125	13,383,125
Mankato	83	8	.....	.....	91
Total	1,355,654	200,493	260,861	13,477,611	15,294,619
Grand total	19,902,956	45,464,944	38,538,821	47,337,029	151,243,750
Subsidiary corporations:					
Aaron Poultry & Egg Co	4,132,644	1,149,678	147,642	.....	5,429,964
C. E. Blodgett Cheese, Butter & Egg Co	.....	81,833	.....	7,534,969	7,616,802
A. S. Kininmonth Produce Co	576,434	1,393,087	1,283,640	.....	3,253,161
Eau Claire Creamery Co	.....	.....	438,742	159,231	597,973
Harold L. Brown Co., Inc.	286,137	3,067,364	3,072,631	4,637,107	11,063,239
Total	4,995,215	5,691,962	4,942,655	12,331,307	27,961,139
Grand total including auxiliaries	24,898,171	51,156,906	43,481,476	[2]59,668,336	179,204,889

[1] Approximately 45 pounds are equivalent to one case, or 30 dozens.
[2] This total includes the sales for the Neenah Cheese & Cold Storage Co. for only one-half the year, which amounted to 13,383,125 pounds. Estimating the year's sales at double this quantity, Armour's 1917 sales amounted roundly to 73,000,000 pounds.

3.—YEAR ENDING NOVEMBER 2, 1918.

[Classification of sales is Armour's.]

	Poultry (pounds).	Eggs (pounds).	Butter (pounds).	Cheese (pounds).	Totals (pounds).
Packinghouse sales direct	2,607,827	2,130,508	2,018,455	11,892,809	.....
Buying houses	431,617	204,004	217,419	4,986,699	.....
Branch houses	18,700,193	62,901,812	40,900,122	51,238,551	.....
Total Armour sales to trade	21,739,637	65,236,324	43,135,996	68,118,059	198,230,016
Subsidiary corporations	5,481,523	12,688,519	7,830,880	9,261,173	35,312,095
Grand total	27,221,160	77,924,843	51,016,876	77,379,232	233,542,111

Big packer (Morris excepted) tonnage sales of dressed poultry, eggs, butter, and cheese, 1915–1918—Continued.

C.—WILSON & CO., INC.

[Classification [1] of sales is Wilson's.]

	Poultry (pounds).	Eggs (cases).[3]	Butter (pounds).	Cheese (pounds).
1915.				
Plants[2]	2,978,355	206,308	3,336,714	3,746,373
Branches	7,345,963	375,000	5,740,467	6,507,288
Total[1]	10,324,318	581,308	9,077,181	10,253,661
1916.				
Plants[2]	3,245,579	225,256	5,380,944	3,197,948
Branches	8,979,024	514,516	8,960,883	9,532,424
Total[1]	12,224,603	739,772	14,341,827	12,730,372
1917.				
Plants[2]	4,634,017	241,582	5,462,412	3,988,883
Branches	11,661,838	675,622	11,076,143	9,174,877
Total[1]	16,295,855	917,204	16,538,555	13,163,760
1918.				
Plants[2]	7,936,271	346,302	8,071,233	8,175,557
Branches	14,460,119	791,667	13,493,866	12,964,762
Total[1]	22,396,390	1,137,969	21,565,099	21,140,319

[1] Some duplication is involved in the Wilson sales owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.
[2] The sales of three plants only are included: Chicago, Kansas City, and Oklahoma City.
[3] One case is equivalent to 30 dozens, or about 45 pounds net.

D—THE CUDAHY PACKING CO.[1]

[Sales for 1915 and 1916 are reported as not available. See text Part I. of this Report, Table 61, p. 233 for branch-house sales for 1916.]

	Poultry (pounds).	Eggs (pounds).[2]	Butter (pounds).	Cheese (pounds).
1917.				
Total	3,130,000	28,965,000	12,290,000	15,900,000
1918.				
Total	7,890,000	37,910,000	16,760,000	24,100,000

[1] Sales through all Cudahy plants, car routes, and branches and the following subsidiary companies are included: The Dow Cheese Co., Sunlight Produce Co., and the D. E. Wood Butter Co.
[2] Approximately 45 pounds are equivalent to one case, or 30 dozens.

EXHIBIT X.

BIG PACKERS' BUTTER-RENOVATING PLANTS, NAMES OF COMPANIES UNDER WHICH OPERATED, RELATION OF COMPANIES TO PACKERS, LOCATIONS OF PLANTS BY STATE GROUPINGS, AND BUYING STATIONS, 1918.

(For produce houses which handle only, as well as those which manufacture, see Exhibit IV.)

[Products reported as bought by stations are designated by letters: C.=cream, P.=poultry, B.=butter, E.=eggs.]

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Maine. *New Hampshire.* *Vermont.*		
			Massachusetts.		
Swift	H. L. Handy Co.	60 per cent owned by Swift & Co.	Springfield [1]	Quincy, Ill. (Davis-Cleaver Produce Co.).	E., B.
				Rhinelander, Wis. (Rhinelander Creamery & Produce Co.).	B.
			Rhode Island. *Connecticut*		
			New York.		
Armour	Cortland Beef Co.	Trade name of Armour & Co.	Cortland		

[1] Swift & Co. reported this company as operating a general produce plant.

Big packers' butter-renovating plants, names of companies under which operated, relation of companies to packers, locations of plants by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			New Jersey. *Pennsylvania.* *Delaware.* *Maryland.* *Virginia.* *West Virginia.* *North Carolina* *South Carolina.* *Georgia.* *Florida.*		
			Ohio.		
Swift	Swift & Co		Defiance	Napoleon [1]	B., E., P.
Morris	The Gray & White Co	16 per cent of voting stock owned by Morris & Co.	Tiffin	Forest [1]	(2)
				North Baltimore [1]	(2)
				Clyde [1]	(2)
			Kenton		
			Indiana.		
Armour	Armour & Co		Rochester [3]	Akron	B., C., E., P.
				Mentone	B., C., E., P.
				North Manchester	B., C., E., P.
				Rochester	B., C., E., P.
				Warsaw	B., C., E., P.
				Bourbon	B., C., P.
				Denver	B., C., E., P.
				Fulton	B., E., P., C.
				Kewanna	B., E., P., C.
				Milford	B., E., P., C.
				New Paris	B., E., P., C.
				Talma	B., E., P., C.
				Tippecanoe	B., E., P., C.
				Tipton	B., E., P., C.
				Walkerton	B., E., P., C.
Morris	Sherman White & Co	52 per cent owned by Morris & Co.	Fort Wayne	Peru (Sherman White & Co.)	B., C., E.
				Warsaw (Sherman White & Co.)	B., E., P., C.
				Pennville (F. M. Whisler)	B., E., P.

			Illinois.		
Swift	T. D. Winders	Trade name of W. F. Priebe Co	Aledo	Keithsburg (T. D. Winders)	B., E., P.
	Martin Schulze	do	Bushnell	Adair (E. Juneman)	B., E., P.
				Havana (G. W. Murphy)	B., E., P.
				Vermont (Guy Corbett)	B., E., P.
	W. A. Schwartz Produce Co	do	Lanark	Milledgeville [1]	B., E., P.
				Polo [1]	B., E., P.
				Stockton [1]	B., E., P.
	W. H. Schreitling	do	Monmouth	Alpha (W. H. Schreitling)	B., E., P.
	Frank Grampp	do	Princeton	Manlius (Fred Roake)	B., E., P.
				Neponset (E. L. Mear)	B., E., P.
				Tiskilwa (Chas. Blessing)	B., E., P.
	L. G. Grampp Produce Co	do	Sterling	Amboy [1]	B., E., P.
				Dixon [1]	B., E., P.
				Franklin Grove [1]	B., E., P.
				Hooppole [1]	B., E., P.
				Tampico [1]	B., E., P.
				Walnut [1]	B., E., P.
				Rochelle [1]	B., E., P.
Wilson	Altamont Produce & Packing Co	Operated by Wilson & Co., Inc	Altamont	St. Peter (St. Peter Produce Co.)	B., E., P.
			Michigan.		
Swift	Swift & Co		Alma	Merrill (P. J. Haley)	B., E., P., C.
				Owasso (F. A. Patch)	B., E., P., C.
				St. Louis (Geo. Gray)	B., E., P., C.
				Edmore (Geo. Wager)	B., E., P., C.
				Elsie (H. R. Hays)	B., E., P., C.
Armour	Armour & Co		Owasso		
			Wisconsin.		
Cudahy	The D. E. Wood Butter Co	Acquired by The Cudahy Packing Co., Apr. 1, 1918.	Evansville		
			Minnesota.		
Swift	Swift & Co		South St. Paul [4]	Montgomery [1]	(2)
				Cannon Falls [1]	(2)
				Sauk Center [1]	(2)
				Brooton [1]	(2)
				Kenyon [1]	(2)
	W. F. Priebe Co	100 per cent owned by Swift & Co	Waseca		
Armour	Armour & Co		Duluth		
			Mankato		
Wilson	Wilson & Co., Inc		Red Wing		

[1] Name of operating agency not reported.
[2] Products purchased through buying stations not reported.
[3] Names of operating agencies for the stations of the Rochester plant not reported.
[4] Swift & Co. reported a general produce plant here.

Big packers' butter-renovating plants, names of companies under which operated, relation of companies to packers, locations of plants by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Iowa.		
Swift	Swift & Co		Ottumwa	Fairfield (C. B. McPeak)	B., E., P., C.
				North English (R. A. Browner)	B., E., P., C.
			Keokuk	Donnellson (E. M. Hennis)	B., E., P.
			Clarinda	Coin (M. H. Eberle)	B., C., E., P.
				Ellston (N. O. Marker)	B., C., E., P.
				Essex (Russell England)	B., C., E., P.
				Elmo, Mo. (Carl Shelton)	C., B., E., P.
				Shenandoah (E. N. Gardner)	C., B., E., P.
				Skidmore, Mo. (W. K. Zook)	C., B., E., P.
				Hambaugh (J. S. Kinney)	B., E., P.
			Clinton	Chelsea (J. E. Prusha)	B., C., E., P.
				Center Point (J. A. Featherkile)	B., C., E., P.
				Erie, Ill. (H. E. Wolover)	B., C., E., P.
				Guernsey (C. Sutphin)	B., C., E., P.
				Hartwick (P. S. Warnick)	B., C., E., P.
				Keystone (Peter Hansen)	B., C., E., P.
				Wheatland (A. J. Meiers)	B., C., E., P.
	Sac City Produce Co	Output sold to W. F. Priebe Co	Sac City		
	W. F. Priebe Co	100 per cent owned by Swift & Co	Humboldt	Algona [1]	B., E., P.
				Burt [1]	B., E., P.
				Lake Mills [1]	B., E., P.
			Hampton		
	Atlantic Produce Co	Trade name of W. F. Priebe Co	Atlantic	Audubon (Audubon Produce Co.)	B., E., P.
				Casey (Atlantic Produce Co.)	B., E., P.
				Earlham (Earlham Produce Co.)	B., E., P.
				Harlan (Harlan Produce Co.)	B., E., P.
				Stuart (Atlantic Produce Co.)	B., E., P.
	Manning Produce Co	do	Manning	Jefferson (W. B. Parrott Co.)	B., E., P.
				Ute (Ute Produce Co.)	B., E., P.
	W. B. Parrott Co	do	Carroll	Onawa (W. B. Parrott Co.)	B., E., P.
	W. F. Priebe Co	100 per cent owned by Swift & Co	Muscatine	Wilton (W. F. Priebe Co.)	B., E., P.
Armour	Nicholson Ice & Produce Co	50 per cent owned by Armour & Co	Denison		
	Aaron Poultry & Egg Co	do	Creston		
			Leon		
Wilson	Wilson & Co., Inc		Ottumwa		
			Cedar Rapids		
			Mason City		
Cudahy	Sunlight Produce Co	100 per cent owned by The Cudahy Packing Co.	Sioux City	Norfolk, Nebr. [1]	B., E., P.
			Winfield	Mount Pleasant [1]	B., E., P.

			Missouri.		
Swift	A. B. Cole & Sons	Output sold to W. F. Priebo Co., which is 100 per cent owned by Swift & Co.	California	Versailles[1]	B., E., P.
				Tipton[1]	B., E., P.
				Clarksburg[1]	B., E., P.
				Lohman[1]	B., E., P.
				Russellville[1]	B., E., P.
				Enon[1]	B., E., P.
				Eldon[1]	B., E., P.
				Bagnell[1]	B., E., P.
Armour	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Kansas City		
	Armour & Co.		Boonville	Fayette[1]	B., E., P.
				Marshall[1]	B., E., P.
			Clinton	Eldorado Springs[1]	B., E., P.
			Springfield	Exeter[1]	B., E., P.
				Seligman[1]	B., E., P.
				Mountain Grove[1]	B., E., P.
			North Dakota.		
			South Dakota.		
			Nebraska.		
Armour	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Fremont		
			Kansas.		
Swift	Swift & Co.		Sabetha		
			Hutchinson	Kingman[1]	B., E., P., C.
Armour	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Fredonia		
			Hutchinson		
			Kiowa		
			Wellington		
			Wichita		
	A. S. Kininmonth Produce Co.	50 per cent owned by Armour & Co.	Winfield		
			Kentucky.		
Armour	Kentucky Creameries	Trade name of Armour & Co.	Louisville	Pleasureville (Kentucky Creameries)	B., E., P., C.
				Shelbyville (Kentucky Creameries)	B., E., P., C.
				La Grange (Kentucky Creameries)	B., E., P., C.
				Elizabethtown (Kentucky Creameries)	B., E., P., C.
				Taylorsville (Kentucky Creameries)	B., E., P., C.
				New Albany, Ind. (Kentucky Creameries).	B., E., P., C.
			Tennessee.		
Wilson	Wilson & Co., Inc.		Nashville	Portland[1]	B., E., P.

[1] Name of operating agency not reported.

Big packers' butter-renovating plants, names of companies under which operated, relation of companies to packers, locations of plants by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of plant by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Alabama. *Mississippi.* *Louisiana.*		
			Texas.		
Swift	Swift & Co.		Fort Worth	Amarillo [1]	B., E., P.
			Oklahoma.		
Armour	Aaron Poultry & Egg Co.	50 per cent owned by Armour & Co.	Chickasha		
			Enid		
			Woodward		
	Enid Poultry & Egg Co.	50 per cent owned by Aaron Poultry & Egg Co.	Enid		
Wilson	Wilson & Co., Inc.		Oklahoma City	Altus [1]	B., E., P.
			Arkansas. *Montana.* *Wyoming.*		
			Colorado.		
Swift	Swift & Co.		Denver	Stratton, Nebr. (E. L. Strayer)	B., E., C.
			New Mexico. *Arizona.* *Utah.* *Nevada.* *Idaho.* *Washington.*		
			Oregon.		
Swift	Union Meat Co.	100 per cent owned by Swift & Co.	Portland	Junction City (W. F. Nielson)	B., C., E., P.
				Aurora (P. S. Will)	B., C., E., P.
				Yoncalla (C. H. Burkholder)	B., C., E., P.
				McMinnville (D. C. Robbins)	B., C., E., P.
				Silverton (F. C. Dunlap)	B., C., E., P.

				Sheridan (C. H. Hauser)	B., C., E., P.
				Woodburn (C. V. Coynyne)	B., C., E., P.
				Willamina (J. H. Robison)	B., C., E., P.
				Amity (R. R. Massey)	B., C., E., P.
				Halsey (L. M. Byerly)	B., C., E., P.
				Goshen (M. D. Capenhauer)	B., C., E., P.
				Dayton (R. W. Krelts)	B., C., E., P.
				Goldendale, Wash. (Tibbs & Lawler)	B., C., E., P.
			California.		
Swift	Western Meat Co	78.7 per cent owned by Big Five: Swift & Co., 44.5 per cent; Morris & Co., 29.9 per cent; Armour & Co., 2.6 per cent; Wilson & Co., Inc., 1.5 per cent; The Cudahy Packing Co., 0.2 per cent.	San Francisco		

[1] Name of operating agency not reported.

EXHIBIT XI.

BIG PACKERS' CREAMERIES, NAMES OF COMPANIES UNDER WHICH OPERATED, RELATION OF COMPANIES TO PACKERS, LOCATIONS OF CREAMERIES BY STATE GROUPINGS, AND BUYING STATIONS, 1918.

(For produce houses which handle only, as well as those which manufacture, see Exhibit IV.)

[Products reported as bought by buying stations are designated by letters: C.=cream, P.=poultry; B.=butter; E.=eggs; Prod.=produce.]

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Maine. *New Hampshire.* *Vermont.* *Massachusetts.* *Rhode Island.* *Connecticut.* *New York.* *New Jersey.* *Pennsylvania.* *Delaware.* *Maryland.* *Virginia.* *West Virginia.* *North Carolina.* *South Carolina.* *Georgia.* *Florida.*		
Swift	Swift & Co		*Ohio.* Lima	Ada (Frank Wilson)	C.
				Arlington (Earl Wilch)	C.
				Beaverdam (F. S. Beade)	C.
				Bluffton (F. S. Beade)	C.
				Botkins (F. G. Gutman)	C.
				Buckland (Brorein Bros.)	C.
				Bellefontaine (Tudor & Outland)	C.
				Celina (Bowser & Smith)	C.
				Coldwater (Frank Broerman)	C.
				Chickasaw (Clem Frenzer)	C.

Col. Grove (B. M. Clymer)	C.
Continental (D. E. Jenkins)	C.
Convoy (Clay & Venderly)	C.
Delphos (Stallkamp Co.)	C.
Deshler (C. D. Miller)	C.
Dixon (C. E. Reed)	C.
Dola (Kahler & Oberly)	C.
Dunkirk (J. H. Miller)	C.
Forest (L. C. Berlein)	C.
Findlay (Files Bros.)	C.
Glandorf (Frank Edelbrock)	C.
Haviland (Kohn & Klinger)	C.
Harrod (C. E. Pence)	C.
Huntsville (D. C. Sturn)	C.
Jackson Center (Snyder-Poole Co.)	C.
Kenton (B. M. Harrison)	C.
Lakeview (J. D. Miller)	C.
Leipsic (Central Grocery)	C.
Lockington (Vogler Bros.)	C.
McMorran (H. E. Moore)	C.
Middlepoint (H. K. Nungester)	C.
Montra (Daniel Collins)	C.
Mount Blanchard (Fred Sampson)	C.
Mount Cory (Jackson Bros.)	C.
Maplewood (J. E. Smith)	C.
New Hampshire (Elmer Williams)	C.
New Knoxville (Belefeld & Son)	C.
Nevada (Clyde Reese)	C.
Ottawa (H. B. Schmenk)	C.
Oren (E. J. Enyart)	C.
Portage (A. C. Sargent)	C.
Piqua (Quilling & Brock)	C.
Pandora (Pandora D. G. Co.)	C.
Quincy (W. E. Leach)	C.
Rawson (L. B. Folk)	C.
Rudolph (Keneth Kidd)	C.
Red Key, Ind. (F. C. Brewer)	C.
Rockford (C. R. Billman)	C.
Rosewood (Frank Ford)	C.
St. Johns (Frank Martin)	C.
St. Paris (Elmer Briggs)	C.
Troy (Quilling & Brock)	C.
Uniopolis (Chas. Taylor)	C.
Upper Sandusky (Rangler-Warner Co.)	C.
Yorkshire (Althoff & Martin)	C.
West Liberty (E. Mustaine)	C.
Waynesfield (Chas. Young)	C.
Sidney (A. G. Minniear)	C.
Geyer (R. E. Dixon)	C.
Kalida (Sam Stephens)	C.
Mortimer (J. W. Wolf)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Ohio—Continued.		
Swift	Swift & Co.		Lima	Wapakoneta (Clinton M. Smith)	C.
				Minster (F. Marsey)	C.
				Elida (H. A. McDonel)	C.
				Cecil (J. Poetzinger)	C.
				Vaughnsville (F. E. Roberts)	C.
				Hicksville (D. W. Hole)	C.
				Holgate (Hamler Dairy Co.)	C.
				Marion, Ind. (Swift & Co.)	C.
				Carey (C. F. Williams)	C.
				Belmore (Warren B. Wilson)	C.
				Jenera (C. E. Crist)	C.
				Weston (H. H. Irwin)	C.
				Santa Fe (Norman Keysor)	C.
				Lafayette (J. G. Knoble)	C.
				Bellecenter (J. L. Reames & Son)	C.
				Continental (M. B. Myers)	C.
				North Robinson (Caskey & Bogan)	C.
				McCutchensville (Wagner & Clark)	C.
				Sycamore (R. H. Delaplane)	C.
				Ayersville (Chas. Mix)	C.
				Coldwater (Frank Broerman)	C.
				Cygnet (S. M. Myers)	C.
				Fletcher (S. C. McDaniels)	C.
				Fort Loramie (W. J. Borchers)	C.
				Cloverdale (L. M. Packard)	C.
				Portland, Ind. (A. D. Castle)	C.
				Monroeville, Ind. (Crane & Savis)	C.
				Pemberton (W. R. Shreeves)	C.
				Weston (F. C. Schoenfeld)	C.
				Hepburn (J. W. Sale)	C.
				Dawson (T. W. Griffis)	C.
				Degraff (W. F. Casebolt)	C.
				Van Wert (Peoples Grocery Co.)	C.
			Defiance	Hicksville (Swift & Co.)	E. P. C.
				Napoleon (Swift & Co.)	B., E., P., C.

Morris	The Gray & White Co.	16 per cent of voting stock owned by Morris & Co.	Tiffin	Forest[1]	[2]
				North Baltimore[1]	[2]
				Clyde[1]	[2]
			Kenton		
			Indiana.		
Swift	Swift & Co		Kokomo		
			Marion	Dunkirk (S. T. Clouse)	C.
				Russiaville (J. E. Kanable)	C.
				Forest (Oren L. Davis)	C.
				Goldsmith (Ollie Smith)	C.
				Alexandria (C. W. Casper)	C.
				Wabash (J. W. Helmet)	C.
				Hartford City (W. H. Clingenpeel)	C.
				Walton (Walter Irvington)	C.
				Sycamore (W. L. Wyman)	C.
				Fowlerton (Clyde Pardridge)	C.
				Loree (M. P. Conn)	C.
				Gaston (Mrs. A. K. Wyatt)	C.
				Galveston (Everett E. Williams)	C.
				Redkey (F. C. Brewer)	C.
				Michigantown (J. H. Bennet)	C.
Armour	Armour & Co		Rochester[3]	Akron	B., E., P., C.
				Mentone	B., E., P., C.
				North Manchester	B., E., P., C.
				Rochester	B., E., P., C.
				Warsaw	B., E., P., C.
				Albany	C.
				Andrews	C.
				Arcadia	C.
				Bippus	C.
				Bourbon	B., C., P.
				Burrows	C.
				Deedsville	C.
				Denver	B., C., E., P.
				Doran	C.
				Elko	C.
				Fulton	B., C., E., P.
				Kempton	C.
				Kewanna	B., C., E., P.
				La Paz	C.
				Luther	C.
				Markle	C.
				Mexico	C.
				Miami	C.
				Milford	B., C., E., P.
				New Paris	B., C., E., P.
				Onward	C.

[1] Name of operating agency not reported.
[2] Products purchased through buying stations not reported.
[3] Names of operating agencies of the stations of the Rochester plant not reported.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Indiana—Continued.		
Armour	Armour & Co		Rochester	Pierceton	C.
				Roann	C.
				Sharpsville	C.
				Shideler	C.
				South Whitley	C.
				Spiker	C.
				Syracuse	C.
				Talma	B., C., E., P.
				Tippecanoe	B., C., E., P.
				Tipton	B., C., E., P.
				Twelve Mile	C.
				Walkerton	B., C., E., P.
				Windfall	C.
Morris	Sherman White & Co	52 per cent owned by Morris & Co	Fort Wayne	Peru (Sherman White & Co.)	B., E., P., C.
				Warsaw (Sherman White & Co.)	B., E., P., C.
			Illinois.		
Swift	Swift & Co		Decatur	Altamont (Chas. Alwert)	C.
				Atlanta (Kitchell & Gilchrist)	C.
				Atwood (O. A. Weatherford)	C.
				Assumption (W. R. Sarver)	C.
				Bonnie (J. P. Stormont)	C.
				Blue Mound (C. H. Linderer)	C.
				Belle River (Roy Page)	C.
				Bement (T. B. Ewing)	C.
				Bethany (V. A. Mitchell)	C.
				Cerro Gordo (J. M. Pollard)	C.
				Casner (Bell & Lehman)	C.
				Du Bois (C. J. Reidelberger)	C.
				Dahlgren (Allen Hardware Co.)	C.
				Delafield (W. M. Maulding)	C.
				Exchange (C. E. Shaffer)	C.
				Ewing (A. S. Fleaman)	C.
				Evansville (M. L. Schick)	C.
				Hammond (South & Sons)	C.
				Lincoln (Roy Evans)	C.
				Lovington (C. H. Curry)	C.

	Marlow (J. J. Brogan)	C.
	Murdock (M. A. Wilson)	C.
	Mount Vernon (Swift & Co.)	C., E.
	McLeansboro (J. R. Ayat)	C.
	Patoka (C. B. Anderson)	C.
	Ridgeway (R. G. Hemphill)	C.
	Raymond (Fred Guthrie)	C.
	Schuilines (G. H. Meyer)	C.
	Shapout (Dalton & Dalton)	C.
	Stortington (F. J. May)	C.
	Sullivan (Sullivan Ice Cream Co.)	C.
	Shelbyville (Henderson & Zimmer)	C.
	Toledo (David Richardson)	C.
	Vernon (C. B. Anderson)	C.
	Windsor (Gaddis & Wallace)	C.
	Walpole (Williamson Bros.)	C.
	Woodlawn (Loran Capp)	C.
	Whittington (Link Eskew)	C.
	Simms (O. McRill)	C.
	Rankin (H. Shoemaker)	C.
	Newman (P. H. Burgett)	C.
	Paxton (O. Olson)	C.
	Elliott (J. V. Volden)	C.
	Metcalf (P. J. Breen)	C.
	Kinmundy (C. L. Millican)	C.
Jacksonville	Alsey (R. R. Woodall)	C.
	Bluffs (Philips Produce Co.)	C.
	Winchester (J. J. Overton)	C.
	Arenzville (Arenzville Produce Co.)	C.
	Astoria (Schwartz & Bonn)	C.
	Summum (Ross Hulvey)	C.
	Vermont (A. F. Webster Co.)	C.
	Ray (J. W. Young)	C.
	Ipava (S. E. Roth)	C.
	London Mills (L. F. Edmonson)	C.
	Griggsville (W. E. Kneeland)	C.
	Plainsville (C. E. Waters)	C.
	Hersman (Latin Lenz)	C.
	Meredosia (United Mercantile Co.)	C.
	Hull (C. A. Dinning)	C.
	Kinderhook (L. Chasteen)	C.
	Perry (R. L. Brim)	C.
	Chambersburg (J. H. Dennis)	C.
	Murrayville (Blakeman Produce Co.)	C.
	Manchester (Blakeman Produce Co.)	C.
	Scottville (E. E. Booker)	C.
	Modesto (R. L. Conlee)	C.
	Palmyra (J. H. Koepping)	C.
	Jerseyville (J. J. McGuire)	C.
	Fieldon (Wheaton Bros.)	C.
	Eldred (R. M. Davison)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Illinois—Continued.		
Swift	Swift & Co.		Jacksonville—Contd.	Kampsville (Rose & Son)	C.
				Lynville (Carl May)	C.
				Pearl (T. F. Blair)	C.
				Prentice (Chas. Holbrook)	C.
				Pleasant Plains (W. H. Stevens)	C.
				Petersburg (M. E. Turner)	C.
				Greenview (J. C. Scalp)	C.
				Mason City (Earhart Sisters)	C.
				Thomasville (A. A. Drennan)	C.
				Farmersville (Miller & Co.)	C.
				Alhambra (Fred Landolt)	C.
				Greenfield (J. R. Stickel)	C.
				Modora (E. C. Kahl)	C.
				Waltonville (E. H. Dare)	C.
				Clarksville, Mo. (J. C. Mendonsa)	C.
				Jonesburg, Mo. (Farmers' Mercantile Co.)	C.
				Warrenton, Mo. (E. Schowengerdt)	C.
				Wright City, Mo. (W. H. Fricke)	C.
				Swiss, Mo. (F. B. Meyers)	C.
				Steelville, Mo. (Steelville Supply Co.)	C.
				Bourbon, Mo. (Honea & Rohrer)	C.
				Meta, Mo. (N. J. Rowan)	C.
				Sullivan, Mo. (Sullivan Mercantile Co.)	C.
				Union, Mo. (Maune Bros.)	C.
				Augusta, Mo. (Edw. Haferkamp)	C.
			Michigan.		
Swift	Swift & Co.		Alma	Akron (Reinke & Wolf)	C.
				Altona (K. B. Wilson)	C.
				Bad Axe (A. W. Bebertz)	C.
				Bannister (Mrs. J. A. Gardham)	C.
				Bath (A. B. Kloz)	C.
				Big Rapids (E. C. Maxson)	C.
				Bitely (J. H. Koopman)	C.
				Breckenridge (H. J. Weed)	C.
				Broomfield (Mrs. M. McCollum)	C.

Byron (D. F. Benton)	C.	
Blanchard (Geo. Lesh)	C.	
Clare (Halstead & Feightner)	C.	
Crystal (Rulo & Lasselle)	C.	
Custer (A. C. Hansen)	C.	
Clifford (J. E. Murdick)	C.	
Collins (R. A. Patterson)	C.	
Delwin (A. H. Elliott)	C.	
Edgewood (Geo. Wagner)	C.	P., E., B.
Edmore (Geo. Wager)	C.	P., E., B.
Elsie (H. R. Hayes)	C.	
Entrican (R. A. Pintler)	C.	
Elm Hall (D. Hicks)	C.	
Elwell (A. H. Roof)	C.	
Fenwick (T. W. Worden)	C.	
Ferris (Mrs. E. O. Dyer)	C.	
Fishville (C. Bogart)	C.	
Freesoil (J. W. Bennett & Son)	C.	
Fountain (C. F. Engler)	C.	
Harrison (Hughes Bros.)	C.	
Holly (Jno. M. Denel)	C.	
Hemlock (F. M. Murphy)	C.	
Howard City (A. W. Crittenden)	C.	
Ithaca (Nelson & Mathews)	C.	
Lakeview (F. L. Stebbins)	C.	
Lakeview, R. F. D. (C. F. Mansfield)	C.	
Langport (G. H. Tarr)	C.	
Lowell (Geo. Lake)	C.	
Lyons (John Shoemaker)	C.	
Mullliken (Wellman & Barber)	C.	P., E., B.
Merrill (P. J. Haley)	C.	
Mount Pleasant (W. H. Brown)	C.	
Muir (Geo. W. Chase)	C.	
McBrides (Chas. White)	C.	
Moseley (H. F. Pickens)	C.	
Mecosta (J. E. Kirwin)	C.	
Owosso (F. A. Patch)	C.	P., E., B.
Newaygo (J. H. Edwards)	C.	
Rathbone (F. E. Patterson)	C.	
Riverdale (A. Van Alstine)	C.	
Rodney (E. P. Carr & Co.)	C.	
Rosebush (Wm. Calkins)	C.	
Rolland (Grover Diehl)	C.	
Six Lakes (H. S. Cornell)	C.	
Shepherd (H. J. Walker)	C.	
Sidney (F. G. Hansen)	C.	
Standish (Geo. Grier)	C.	
St. Johns (Byron Dandy)	C.	
Summerton (H. M. Shepherd)	C.	
Sumner (R. M. Forquer)	C.	
Sebewaing (W. O. Saffell)	C.	

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Produets bought.
Swift	Swift & Co.		*Michigan*—Continued.		
			Alma—Continued	St. Louis (Geo. Gray)	P., C., E., B.
				Sherman City (Williams & Son)	C.
				Titus (A. C. G. Case)	C.
				Trufant (Chas. W. Christiansen)	C.
				East Tawas (W. C. Schill)	C.
				Unionville (J. H. Kemp & Co.)	C.
				Vassar (A. E. Streeter)	C.
				Williamston (Fred King)	C.
				Winn (E. Richardson)	C.
				Weidman (Weidman Produce Co.)	C.
				Wheeler (C. W. Lanshaw)	C.
				Wise (McNerney & Co.)	C.
				Wyman (H. C. Marolf)	C.
				Webberville (C. H. Goyt)	C.
				Woodruff (Geo. Edwards)	C.
			Cadillac	Arlene (A. D. Whipple)	C.
				Bagnall (Bellaire & Lagoe)	C.
				Bellaire (C. B. Turner)	C.
				Bear Lake (Connelly & Son)	C.
				Charlevoix (Chas. Lamphear)	C.
				Central Lake (W. P. Carpenter)	C.
				Cedar City (John Tucker)	C.
				Deighton (J. M. Curtice)	C.
				Elk Rapids (Leo Martineck)	C.
				East Jordan (F. H. Bennett)	C., E.
				Ellsworth (Ellsworth Creamery Co.)	C.
				Kalkaska (Cole Bros.)	C.
				Lake City (Swift & Co.)	C., E., P.
				Marion (E. Friend)	C.
				McBain (Joe Martz)	C., E.
				Mesick (Frank Westbrook)	C.
				Manton (Merton Cox)	C.
				Morley (Morley Merchandise Co.)	C.
				Park Lake (F. L. Eichenberg)	C.
				Provemont (Noah Plomondon)	C.
				Paris (C. W. Montague)	C.
				Pierson (A. F. Petrie)	C.
				Reed City (S. S. Carr)	C.
				Sigma (Kirkby Bros.)	C.

				Suttons Bay (Husby Hanson & Co.)	C.	
				Summit City (John Seabright)	C.	
				Stanwood (A. Cooley)	C.,	E., P.
				Temple (W. C. Manning)	C.	
				Tustin (E. H. Quigley)	C.	
				Sauble (Mrs. C. B. Ross)	C.	
				Beulah (John Shira)	C.	
				Omena (Anderson & Co.)	C.	
				Thompsonville (Geo. Stockhill)	C.	
				Riverbank (M. W. Martz)	C.	
				Bodus (Jake Bodus)	C.	
				Elberta (Elberta Milling Co.)	C.	
				Mesick (C. R. Bell)	C.	
				Buckley (Cornell & Williams)	C.	
				Boon (H. T. Reynolds)	C.	
				Edgetts (G. A. Johnson)	C.	
				Falmouth (R. Dykehouse)	C.	
				Kingsley (Moores Cash Store)	C.	
				Kingsley (Ben Bembeneek)	C.	
				Kingsley (T. L. Doneth)	C.	
				Orono (Ray Eichenberg)	C.	
				Traverse (H. Sanford)	C.	
				Boyne City (O. D. Wilson)	C.	
				Ashton (J. C. Holiday)	C.	
				Harrietta (Mary Anderson)	C.	
				South Boardman (E. E. Aldrich)	C.	
			Wisconsin.			
Armour	Eau Claire Creamery Co.	59.5 per cent owned by Armour & Co.	Eau Claire.[1]	Bennett (Bennett Mercantile Co.)	C.	
			Cadott.[1]	Holcombe (Geo. Bernier)	C.	
			Chetek.[1]	Earl (A. Bisk)	C.	
			New Auburn.[1]	Spooner (E. A. Bixby)	C.	
			Cameron.[1]	Mound Prairie, Minn. (W. H. Blumentritt).	C.	
			Bruce.[1]	Woyerhauser (H. Christianson)	C.	
				Glenwood City (M. Christianson)	C.	
				Springbrook (Hugh Clemons)	C.	
				Elmwood (James Collett)	C.	
				Stone Lake (Dickenson & Son)	C.	
				Hawthorne (Louis Efaw)	C.	
				Winter (Farmers' Cooperative Store Co.).	C.	
				Armstrong Creek (Farmers' Store)	C.	
				Dumfries, Minn. (Hager & Markus)	C.	
				Whalen, Minn. (O. J. Hallum)	C.	
				Arkansaw (Alex Johnson)	C.	
				Hannibal (E. Keefer)	C.	
				Minong (F. W. Koller)	C.	
				Hawkins (E. O. Kramer)	C.	
				Radisson (Madson & Colyer)	C.	

[1]Buying stations not designated.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
			Wisconsin—Continued.		
Armour	Eau Claire Creamery Co	59.5 per cent owned by Armour & Co.	Bruce—Continued	Trego (Mills Mercantile Co.)	C.
				Kalish (A. P. Nowak)	C.
				Lampson (Chas. Poths)	C.
				Brownsville, Minn., (J. W. Powers)	C.
				Somerset (Mrs. Joe Rivard)	C.
				Sanborn (Sanborn Mercantile Co.)	C.
				Gilman (Louis Scheler)	C.
				Lehigh (Shaw & Barrett)	C.
				Catawba (O. B. Wick)	C.
				Caledonia, Minn. (Zieman Bros.)	C.
				Millston (M. S. Pitts)	C.
				Columbia (A. Schlender)	C.
				Chippewa Falls (A. L. Christiansen)	C.
				Greenwood (Greenwood Creamery)	C.
	Spencer Lumber & Supply Co	Output sold to C. E. Blodgett Cheese, Butter & Egg Co., of which 51 per cent is owned by Armour & Co.	Junction City		
Cudahy	D. E. Wood Butter Co	Acquired by The Cudahy Packing Co., Apr. 1, 1918.	Evansville		
	Peacock Creamery	Output sold to the D. E. Wood Butter Co.	Fennimere		
			Mount Hope		
			Minnesota.		
Swift	Swift & Co.		South St. Paul [1]	Montgomery [2]	(3).
				Cannen Falls [2]	(3).
				Sauk Center [2]	(3).
				Brooten [2]	(3).
				Kenyon [2]	(3).
			Iowa.		
Swift	Swift & Co		Clarinda	Brownsville, Nebr. (A. E. Parker)	C.
				Clearfield (J. N. Henderson)	C.
				Clearmont, Mo. (Robt. Pence)	C.
				Coin (W. H. Eberle)	P., B., C., E.
				Ellston (M. O. Marker)	P., B., C., E.
				Elmo, Mo. (Carl Shelton)	P., B., C., E.

			Essex (Russell England)	P., B., C., E.
			Farragut (Fred Long)	C.
			Grand River (Perry Bramner)	C.
			Gravity (N. B. Stewart)	C.
			Guss (Hipsley-Frazie)	C.
			Maitland, Mo. (W. L. Ross)	C.
			New Market (W. J. Parsons)	C.
			New Point, Mo. (E. V. Agler)	C.
			Oregon, Mo. (Schulter-Kunkle)	C.
			Quitman, Mo. (J. E. Jones)	C.
			Shambaugh (Howard-Fulk)	C.
			Shenandoah (Swift & Co.)	C., E., B., P.
			Skidmore, Mo. (W. K. Zook)	C., E., B., P.
			Tingley (J. Y. Housy)	C.
		Clinton	Bennet (D. E. Ayers)	C.
			Chelsea (J. E. Prusha)	C., P., B., E.
			Center Point (J. A. Featherkile)	C., P., B., E.
			Elberon (J. Dolezal)	C.
			Erle, Ill. (H. E. Wolover)	C., P., B., E.
			Garwin (Geo. Jorgensen)	C.
			Goose Lake (F. J. Finck)	C.
			Guernsey (C. Sutphin)	C., P., B., E.
			Hartwick (P. S. Warnick)	C., P., B., E.
			Hurstville (H. B. Lucky)	C.
			Keystone (Peter Hansen)	C., P., B., E.
			La Porte City (L. M. Ashley)	C.
			Lisbon (J. W. Hahn)	C.
			Miles (P. F. Petersen)	C.
			Mount Vernon (M. Turner)	C.
			Olin (W. C. Westphal)	C.
			Prophetstown, Ill. (A. J. Griswold)	C.
			Petersville (A. J. Mallon)	C.
			Sabula (F. Rathje)	C.
			Shannon, Ill. (Geo. Byers)	C.
			Spragueville (J. Ragenwether)	C.
			Toledo (O. L. Corns)	C.
			Vinton (C. Fowler)	C.
			Wheatland (A. J. Meiers)	C., P., B., E.
			Wilton Junction (J. F. Rush)	C.
			Welton (M. Stephenson)	C.
			Walnut, Ill. (Bert Wallis)	C.
		Creston	Spaulding (Mrs. B. E. Livingston)	C., E., P.
			Greenfield (R. G. Jones)	C., E., P.
			Fontanelle (Albert Chew)	C., E., P.
			Bridgewater (E. B. Charles)	C., E., P.
			Massena (I. D. Cornett)	C., E., P.
			Cumberland (H. H. Howell)	C., E., P.

[1] Swift & Co. reported a general produce plant here.
[2] Name of operating agency not reported.
[3] Products purchased through buying stations not reported.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co.		*Iowa*—Continued.		
			Creston—Continued	Macksburg (Ross & Lillard)	C., E., P.
				Zion (G. W. McCrackin)	C., E., P.
				Cumberland (Wm. Waters)	C., E., P.
				Osceola (John Cook)	C., E., P.
				Woodburn (Carl Knutson & Co.)	C.
				Lucas (Hunter Bros. & Olson)	C.
				Afton (Harbour & Son)	C., E., P.
				Kent (Jerry Mayes)	C., P.
				Bedford (H. W. Little & Co.)	C., E., P.
				Hopkins, Mo. (Mutti & Brown)	C.
				Pickering, Mo. (Wolfers Mercantile Co.)	C., E., P.
				Maryville, Mo. (Henry Cook)	C., E., P.
				Arkoe, Mo. (R. R. Smith)	C., E., P.
				Barnard, Mo. (A. J. Price)	C., E., P.
				Fillmore, Mo. (T. F. Lilley)	C., E., P.
				Rosendale, Mo. (J. S. Alldredge)	C., E., P.
				Conway (J. E. Watkins)	C., E., P.
				Prescott (Prescott Produce Co.)	C., E., P.
				Corning (Swift & Co.)	C., E., P.
				Nodaway (C. E. Bentrager)	C., E., P.
				Stanton (E. E. Mollenhoff)	C., E., P.
				Stanton (J. E. Bridges)	C., E., P.
				Carbon (P. E. Sheridan)	C.
				Red Oak (F. D. McClure)	C., E., P.
				Elliott (Frank Tuttle)	C., E., P.
				Taber (J. W. McCleery)	C.
				Villisca (Lewis Bros.)	C., E., P.
				Nevinville (F. C. Bartlett)	C., E., P.
				Creston (Bassett & Roberts)	C., E., P.
			Des Moines	Altoona (F. M. Wheeler)	C.
				Arthur (Pruyne & Yousling)	C.
				Auburn (Waters Bros.)	C.
				Blockton (D. T. Waldrip)	C.
				Breda (Joe Bohnenkamp)	C.
				Cainsville, Mo. (W. L. Chambers & Son)	C.
				Cambridge (S. E. Woods)	C.

	Clare (J. H. Wrisberg)	C.
	Collins (C. S. Stephens)	C.
	Columbia (Morehead & Carruthers)	C.
	Curlew (H. W. Elder)	C.
	Earling (H. H. Langenfeld)	C.
	Farling (F. E. Smith & Son)	C.
	Gilmore City (G. S. Scully)	C.
	Indianola (E. Chittenden)	C.
	Ira (S. W. Weston)	C.
	Jamison (R. W. Blake)	C.
	Jefferson (F. H. Young)	C.
	Lavinia (William Eichhorn)	C.
	Killduff (Jacob Niemantz)	C.
	Knoxville (Underhill & Keller)	C.
	Lacelle (Armagost & Davis)	C.
	Lake View (Prentice Market)	C.
	Leslie (O. C. Cox)	C.
	Linden (Wesley Jones)	C.
	Madrid (Bert Vilas)	C.
	Malcolm (L. F. Whitehead)	C.
	Maxwell (C. E. Scott)	C.
	Melbourne (Melbourne Produce)	C.
	Millerton (L. Muilenberg)	C.
	Minburn (O. E. Howard)	C.
	Mitchellville (James DeLong)	C.
	Motor (W. A. Dillon)	C.
	New Virginia (John Felton)	C.
	Ogden (C. G. Schlarb)	C.
	Perry (Perry Produce Co.)	C.
	Pioneer (D. Pollock)	C.
	Pleasantville (Tom Forst)	C.
	Rands (Chas. Morrison)	C.
	Ravenwood (J. C. Peterson)	C.
	Reasnor (O. E. Carter)	C.
	Rhodes (Joe Blink)	C.
	Rippey (S. S. Little)	C.
	Schleswig (A. H. Stoltenberg)	C.
	Sheridan, Mo. (A. M. Young)	C.
	Summerset (D. C. Wood)	C.
	Winterset (Carey Bros.)	C.
	Adaza (Wayne Stipe)	C.
	Sioux Rapids (F. Schwietzer)	C.
	Albert City (Albert City Cooperative Creamery Co.).	C.
Dubuque	Amboy, Ill. (A. F. Blocker)	C
	Bellevue (Geo. Koeneman)	C. P., E.
	Boyd (F. F. Zierath)	C.
	Bernard (Geo. A. Childe)	C.
	Caledonia, Minn. (Soloerg & Gran)	C., P., E.
	Dyersville (C. H. Westermeyer)	C., P., E.
	Freeburg, Minn. (Geo. N [illegible])	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co.		*Iowa*—Continued.		
			Dubuque—Continued.	Gladbrook (Conent Produce Co.)	C.
				Glen Haven, Wis. (E. Mok)	C.
				Green Mountain (A. H. Thomas)	C.
				Goodhue, Minn. (Bidwell & Nash)	C.
				Guttenberg (Ihm Bros.)	C.
				Hammond, Minn. (P. J. Ilgen)	C.
				Hansell (McLeod & Campbell)	C.
				Harpers Ferry (Geo. F. Cota)	C., P., E.
				La Motte (S. L. Nestor)	C.
				Lanesboro, Minn. (C. C. Madison)	C.
				Littleport (A. B. Zapf)	C.
				Lynxville (P. H. Copsey)	C.
				McIntire (B. C. Diffenbaugh)	C., P., E.
				Millville (Joe Schultz)	C.
				Milledgeville (J. M. Frederick)	C.
				Meservey (C. E. Brogen)	C.
				Nashua (J. W. Pierce & Sons)	C.
				Platteville (N. J. Tower)	C.
				Prosper, Minn. (O. A. Hartz)	C.
				Readstown, Wis. (J. C. Jordan)	C., P., E.
				Ruthven, (Fred Handke)	C.
				Scales Mound (C. W. Glen)	C.
				Sylvan, Wis. (M. J. Glick)	C.
				Soldiers Grove, Wis. (Ed Larson)	C.
				Springbrook, (Peter Scheckel)	C.
				Tennant (J. H. Cook)	C.
				Viola, Wis. (G. B. Long)	C.
				Volga, (M. F. Minnihan)	C.
				Waukon Junction (W. C. Chapin)	C.
				Wauzeka, Wis. (A. W. Pomerening)	C.
				Wesley (Ed Casler)	C.
			Iowa Falls	Ackley (E. W. Meyer)	C., E.
				Armstrong (L. V. Kessler)	C.
				Belmond (P. O. Brandon)	C.
				Barnum (Jno. Morrison)	C., E.
				Buckeye (Chas. Ackerman)	C.

				Bode (L. O. Waddell)	C., P., E.
				Bancroft (W. M. Correct)	C.
				Blairsburg (E. Ashpole)	C., P., E.
				Buffalo Center (Fred Miller)	C., E.
				Burdette (Newton & Lukin)	C.
				Beaman (Berry Mercantile Co.)	C.
				Conrad (Wm. Frazenburg)	C.
				Cartersville (R. E. Schissel)	C.
				Clarion (S. B. Ferguson)	C.
				Chapin (C. E. Stonebreaker)	C.
				Dolliver (F. W. Albee)	C.
				Dysart (Keidel Bros.)	C.
				Eleanor (C. Schurman)	C.
				Emmetsburg (M. Skowho)	C.
				Eldora (R. H. Lewis)	C., P., E.
				Faulkner (L. R. Bates)	C.
				Fonda (C. H. Phelps)	C., P., E.
				Galt (F. W. Shunkwiler)	C.
				Gaza (F. W. Grending)	C.
				Halfa (S. Nelson)	C.
				Hardy (W. J. Loockwood)	C.
				Iowa Falls (C. L. Turner)	C., P., E.
				Kanawha (E. W. Pruisman)	C.
				Larchwood (E. C. Parker)	C.
				Owasa (A. H. Gatton)	C., P., E.
				Radcliffe (O. Rorem)	C., P., E.
				Rowan (D. W. Whitten)	C.
				Smithland (Jno. Yothers)	C.
				Traer (Thos. Scott)	C.
				Ulmer (Kuhn & Lyons)	C.
				Webster City (J. M. Fosdick)	C.
				Woolstock (F. C. Robertson)	C.
				Woden (H. Albers)	C.
				Williams (W. L. Hill)	C., P., E.
				Racine (G. D. McMillan)	C.
			Keokuk	Ashton, Mo. (W. J. Brotherton)	C.
				Augusta, Ill. (R. F. McAfee)	C.
				Arbela, Mo. (Leroy Davis)	C.
				Adrian, Ill. (R. E. Kerr)	C.
				Browning, Mo. (Peters Produce Co.)	C.
				Brooklyn, Ill. (Wm. F. Irvin)	C.
				Boynton, Mo. (A. Reger)	C.
				Basco, Ill. (T. P. Smith)	C.
				Burnside, Ill. (Merlin Ewing)	C.
				Bushnell, Ill. (Martin Schulze)	C.
				Bonaparte, Iowa (S. P. Miller)	C.
				Biandinsville, Ill. (G. E. Kemper)	C.
				Cuba, Ill. (Inman & Anderson)	C.
				Colusa, Ill. (R. E. Kerr)	C.
				Cincinnati, Iowa (H. C. White)	C.
				Clayton, Ill. (Lute Amen)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co.		*Iowa*—Continued. Keokuk—Continued.	Cherry Box, Mo. (J. T. Turner)	C.
				Durham, Mo. (D. N. Hadfield)	C.
				Douds, Iowa (Fred Huston)	C., P., E.
				Donnellson, Iowa (E. M. Hennics)	C., P., E.
				Downing, Mo. (R. P. Allen & Son)	C.
				Dodgeville, Iowa (Theo. N. Vorwerk)	C.
				Dean, Iowa (M. F. Farnsworth)	C.
				Elvaston, Ill. (R. E. Kerr)	C.
				Elderville, Ill. (J. L. Holman)	C.
				Edina, Mo. (Lynch Provision Co.)	C.
				Ferris, Ill. (R. E. Kerr)	C.
				Fountain Green, Ill. (E. Latherow)	C.
				Farmington, Iowa (H. O. Thero)	C.
				Fremont, Iowa (M. G. Palmer)	C.
				Granger, Mo. (Granger Pro. Co.)	C.
				Hitt, Mo. (B.F. Mudd & Son)	C.
				Hillsboro, Iowa (Clark Bros.)	C.
				Hitt, Mo. (Gristy Bros.)	C.
				Keosauqua, Iowa (T. L. Parish)	C.
				Kaboka, Mo. (W. N. Reynolds)	C.
				Lancaster, Mo. (J. C. Hockett)	C.
				Le Harpe, Ill. (Ivo Hughes)	C.
				Livingston, Iowa (L. Hughes)	C.
				Lemons, Mo. (C. H. Matthews & Co.)	C.
				Libertyville, Iowa (Frank Hurst)	C.
				Loraine, Ill. (Loraine Poultry Co.)	C.
				Louisiana, Mo. (J. C. Weber)	C.
				Macomb, Ill. (Empey-Miller Groc. Co.)	C.
				Mediapolis, Iowa (F. M. McNeil)	C.
				Memphis, Mo. (J. Q. Adams)	C.
				Mendon, Ill. (C. Edwards)	C.
				Mount Sterling, Iowa (J. W. Kerr)	C.
				New Philadelphia, Ill. (H. H. Gray)	C.
				Newark, Mo. (J. A. Whitbread)	C.
				Novelty, Mo. (G. W. Howerton)	C.
				Plymouth, Ill. (C. M. Hummer)	C.
				Pollock, Mo. (Anderson Produce Co.)	C.

				Stoutsville, Mo. (A. B. Overstreet)	C.
				Shelbyville, Mo. (E. S. Collier)	C.
				Shelbina, Mo. (W. S. Bryan)	C.
				Steffenville, Mo. (L. B. Snyder)	C.
				Stillwell, Ill. (E. H. Tanner)	C.
				Sutter, Ill. (W. F. Connover)	C.
				Tennessee, Ill. (E. S. Pittinger)	C.
				Unionville, Mo. (C. L. Andereon)	C.
				West Point, Ill. (G. W. Lawrence)	C.
				Warsaw, Ill. (Chas. L. Larson)	C.
				Williamstown, Mo. (L. F. Lammon)	C.
				Monroe City, Mo. (Monroe Produce Co.)	C.
			Ottumwa	Albia (Gantz & Kellogg)	C.
				Avery (H. Miller)	C.
				Batavia (Moss & McDowell)	C.
				Belknap (J. W. Haynes)	C.
				Blakesburg (H. C. Chidester)	C.
				Bussey (Wilkin Grain Co.)	C.
				Bussey (Vissery Produce Co.)	C.
				Fairfield (C. B. McPeak)	C., P., E., B.
				Hayesville (Carson & Son)	C.
				Kirkville (G. W. Pike)	C.
				Lacona (Geo. Overmeyers)	C.
				Melrose (Wm. Steinbrink)	C.
				Millersburg (C. L. Montross)	C.
				Milo (R. L. Manley)	C.
				Moravia (O. W. Stober)	C.
				Mount Ayr (C. E. Price)	C.
				North English (R. A. Brawner)	C., P., E., B.
				Ringgold (J. S. Kator)	C.
				Russell (W. L. Werts)	C.
				Seymour (Anderson Produce Co.)	C.
	Western Packing Co	Branch of W. F. Priebe Co	Spirit Lake	Armstrong (M. Anderberg)	C.
				Milford (J. M. George)	C., E.
				Montgomery (Mrs. Gergenson)	C., E.
				Harris (Alex King)	C., E.
				Worthington (J. W. Shut)	C., E.
				Sanborn (A. E. Crandell)	C., E.
				Reading (Reading Merc. Co.)	C., E.
				Jolley (W. N. Steele)	C.
				Webb (A. Birdsall)	C.
Armour	Nichole on Ice & Produce Co	50 per cent owned by Armour & Co	Denison	Denison (Denison Harness Shop)	E., C.
				Vail (J. J. Dugan)	C.
				Battle Creek (J. B. Brown)	C.
				Herring (L. O. Myers)	C.
				Woodbine (Community Creamery Co.)	C.
				Arcadia (Mrs. Geo. Wessling)	C.
				Anthon (Mrs. L. A. Wilson)	C.
				Arthur (Wm. Dunn)	C.
				Buck Grove (R. Docherty)	C., E., P.
				Castana (R. G. Taylor)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations— Location and name under which operated.	Products bought.
Armour	Nicholson Ice & Produce Co	50 per cent owned by Armour & Co	*Iowa*—Continued. Denison—Continued	Ida Grove (A. D. Saunders)	C., E.
				Kenwood (Vogt & Bahnsen)	C.
				Lake View (P. J. Gottsch)	C.
				Manilla (F. Proescholdt)	C.
				Mapleton (S. P. Judson)	C.
				Moorhead (Mrs. R. Slurlock)	C.
				Odebolt (Fisher & Son)	C.
				Ross, (G. H. Northrup)	C.
				Soldier (Carlson & Christiansen)	C.
				Ute (Major Morse)	C.
				West Side (F. Marriott)	C.
Swift	Swift & Co		*Missouri.* Chillicothe	Avalon (E. W. Fink)	C.
				Bedford (Snyder & Vanlandingham)	C.
				Bogard (J. W. Standley)	C.
				Braymer (Phelps & Wightman)	C.
				Breckenridge (Pond & Son)	C.
				Civil Bend (C. C. Reno)	C.
				Carlow (J. C. Oxford)	C.
				Chillicothe (Wells, Sawyer & Co.)	C.
				Chillicothe (W. W. Smith & Son)	C.
				Cora (A. C. Boyd)	C.
				Cowgill (McCan & Walters)	C.
				Eversonville (G. H. Clarkson)	C.
				Forker (Brady & Deardorff)	C.
				Fountain Grove (D. M. Young)	C.
				Galt, (C. H. McClure)	C.
				Gould Farm (J. P. Henkins & Co.)	C.
				Hamilton (G. L. McPherson)	C.
				Harris (Chas. Sax)	C.
				Half Rock (Thos. Hopper & Son)	C.
				Half Rock (J. L. Cooper)	C.
				Hegla (J. M. Canada)	C.
				Hubbard (L. A. Embree & Son)	C.
				Jameson (W. S. Mays)	C.

		Kearney (A. G. Baldwin)	C.
		Kingston (J. H. Bennett)	C.
		Knoxville (Waller Mere. Co.)	C.
		Laredo (Hortonatine & Cochlin)	C.
		Lawson (Russell Bros.)	C.
		Lucerne (R. W. Winsler)	C.
		Lucerne (C. L. Shelton Mere. Co.)	C.
		Look Springs (W. W. Bills Mere. Co.)	C.
		Meadville (Farmers' Produce Co.)	C.
		Millville (O. J. Wall)	C.
		Millville (Amos Banister)	C.
		Mosby (C. C. Tapp)	C.
		Nettleton (E. L. Clarkson)	C.
		Osborn (C. D. Clarkson)	C.
		Osgood (T. H. Ralls)	C.
		Polo (Gibson Bros.)	C.
		Polo (J. T. Moffett)	C.
		Plymouth (J. N. Bair)	C.
		Redruan (F. Scott & Son)	C.
		St. Catherine (L. Miller)	C.
		Shafter (Myers Bros.)	C.
		Stewartsville (W. H. Horning)	C.
		Sumner (Wall Bros.)	C.
		Salisbury (Phelps & Son)	C.
		Tina (M. G. Calvin)	C.
		Turney (A. Wolfe)	C.
		Triplett (Larson Bros.)	C.
		Wakenda (A. B. Gray)	C.
		Wein (Wm. F. Becker)	C.
		Wheeling (Tharp, Littrell & Co.)	C.
		Whitton (A. Whitton)	C.
		Chula (A. C. Treon)	C.
		Dewitt (E. E. Wharton)	C.
	Sedalia	Archie (E. Neff)	C.
		Archie (J. Westhoff & Son)	C.
		Adrian (S. S. Muchmore)	C.
		Amoret (Turner, Warner & Barton)	C.
		Auxvasse (J. R. Taylor)	C.
		Berger (L. C. Ott)	C.
		Butler (Ray's Produce House)	C.
		Bonnotos Mills (C. Krautsman)	C.
		Climax Springs (Terry Mere. Co.)	C.
		Caplinger Mills (W. E. Phipps)	C.
		Caplinger Mills (Claude Moyur)	C.
		Clarksburg (T. A. Hamlin)	C.
		Clifton City (Potter Bros.)	C.
		Culver (J. A. Herman)	C.
		Cole Camp (Cole Camp Produce Co.)	C.
		Clinton (Lobaugh Produce Co.)	C.
		Calhoun (Calhoun Produce Co.)	C.
		Camp Branch (W. C. Ewers)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co.		*Missouri*—Continued. Sedalia—Continued.	Chamois (E. J. Hempleman)	C.
				Dover (Redd & Gordon)	C.
				Dresden (N. J. Billingsley)	C.
				Dresden (W. J. Holtzen)	C.
				Dunksburg (Andler & Co.)	C.
				Dederick (H. C. Hargrove)	C.
				Dederick (C. R. Bandy)	C.
				Eldorado Springs (Independent Produce Co.)	C.
				Eldorado Springs (Armour & Co.)	C.
				East Lynne (F. B. Plank)	C.
				Edwards (Leroy Dyer)	C.
				Freeman (R. P. Jones)	C.
				Filley (B. C. Whitesell)	C.
				Filley (R. E. Maddox)	C.
				Fayette (Fayette Bottling Works)	C.
				Fulton (R. F. Griffith)	C.
				Gunn City (J. D. Schlichtman)	C.
				Green Ridge (A. J. Raines)	C.
				Harrisonville (Missouri Egg & Produce Co.)	C.
				Houstonia (Harris & Sewell)	C.
				Herman (Paul Monje)	C.
				Higginsville (W. B. McLain)	C.
				Hodge (M. N. Walters)	C.
				Hume (Church Com. Co.)	C.
				Johnstown (J. E. York)	C.
				Jefferson City (Weber Ice Cream Co.)	C.
				Knobnoster (R. B. Sweringen)	C.
				Ketterman (O. P. Wilson)	C.
				Louisburg, Kans. (W. A. Stephenson)	C.
				Lewis Station (T. R. Gill)	C.
				Lincoln (Brill & Wisdom)	C.
				Leila (C. V. Hudson)	C.
				Lamonte (Spillers & Co.)	C.
				Lexington (Warder & Connor)	C.
				Ladue (C. F. Dryer)	C.

				Milford (E. A. Schneider)	C.
				Mayview (Mayview Produce Co.)	C.
				Merwin (Mrs. E. W. DeForest)	C.
				Milo (C. C. Creek)	C.
				Metz (M. Hutchinson)	C.
				Montrose (J. I. Stroup)	C.
				Morrison (Louis Koch)	C.
				New Haven (J. P. Althide)	C.
				Nobby (O. K. Davidson)	C.
				Otterville (H. Everett)	C.
				Pilot Grove (J. P. Conway)	C.
				Pleasant Hill (Pleasant Hill Produce Co.).	C.
				Passaic (Wm. Rice)	C.
				Pittsville (L. R. Peery)	C.
				Rockville (Rockville Equity Co.)	C.
				Rockville (H. Steiner)	C.
				Roseland (C. C. Hartle)	C.
				Rich Hill (G. W. Lentz)	
				Richards (Springer & Spaur)	C.
				Sheldon (Farmers' Exchange)	C.
				Strasburg (W. L. Wright)	C.
				Sutherland (Dean & Stickerod)	C.
				Smithton (H. G. Lugen)	C.
				Passo (H. B. Craig)	C.
				Schell City (W. F. Young)	C.
				Sweet Springs (Sweet Springs Produce Co.).	C.
				Swiss (F. B. Meyers)	C.
				Thrush (G. W. Russell)	C.
				Taberville (C. A. Athey)	C.
				Willowville (M. H. Melton)	C.
				Windsor (Shelton & Harris)	C.
				Walker (Farmers' Produce Co.)	C.
				Warrensburg (D. M. Miller)	C.
				Warsaw (A. H. Holliway)	C.
			Springfield	Arcola (J. W. Griffin)	C.
				Adonis (R. C. Walker)	C.
				Boliver (Boliver Business Men's Produce Co.).	C.
				Buffalo (Fred Vaughn)	C.
				Buffalo (T. J. Wilkerson)	C.
				Charity (Geo. W. Day)	C.
				Cliquet (A. J. Davison)	C.
				Caddo (C. H. Green)	C.
				Comet (Comet Merc. Co.)	C.
				Cuba (J. A. Dorf)	C.
				Conway (Wilkerson Bros.)	C.
				Clever (Oliver Wampler)	C.
				Dadeville (W. H. Vanhooser)	C.
				Dunnegan (J. O. Hammons)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co.		*Missouri*—Continued.		
			Springfield—Contd	Everton (Earl Linderman)	C.
				Elsey (W. B. Green)	C.
				Exeter (A. D. Taylor)	C.
				Fair Play (Golden Rule Store)	C.
				Golden City (W. A. Stout)	C.
				Glidewell (Jno. Cunningham)	C.
				Garden City (Garden City Ice & Cream Co.).	C.
				Hartville (W. T. Wynn)	C.
				Healing Springs, Ark. (H. A. Gambill).	C.
				Hartville (D. B. Palmer)	C.
				Humansville (Humansville Department Store).	C.
				Hiwasse, Ark. (Hiwasse Pro. Co.)	C.
				Loring (J. A. Latimer)	C.
				La Russell (La Russell Merc. Co.)	C.
				Lamar (A. J. Duckett)	C.
				Morrisville (Farmers Produce Co.)	C.
				Marshfield (S. F. Holmes)	C.
				Mt. View (G. N. Surbaugh)	C.
				Miangua (J. N. Smith)	C.
				Ozark (Hanks & Brown)	C.
				Palmetto (C. W. Hodges)	C.
				Quincy (W. P. Morton)	C.
				Richland (F. O. Martin)	C.
				Rogersville (Hodges & Loveland)	C.
				Strafford (Strafford Dairy Association).	C.
				Summersville (E. H. Charles & Co.)	C.
				St. Luke (Burchfield Bros.)	C.
				Siloam Springs, Ark. (Frank Flanders).	C.
				Stockton (R. H. Hacker)	C.
				Southwest City (F. G. Banks)	C.
				Seymour (J. D. Revis)	C.
				Tunas (J. W. Griffith)	C.
				Urbana (C. R. Gatliff)	C.
				Vista (A. L. Elliott)	C.
				Abadyl (G. P. Copeland)	C.

			Trenton	Bruner (W. R. Rathbun)	C.
				Cedar Gap (H. H. Cornelious)	C.
				Hardy, Ark. (J. W. E. Smith)	C.
				Coffey (J. H. Holmes)	C.
				Dunlap (W. Addison)	C.
				Amity (H. A. Duke)	C.
				Gilman (E. W. McClelland)	C.
				Gilman (Anderson Produce Co.)	C.
				Green City (Anderson Produce Co.)	C.
				Hickory (D. H. Mason)	C.
				Humphreys (J. L Roach & Son)	C.
				Maysville (B. F. Mohler)	C.
				Maysville (Newman Estes)	C.
				Mabel (L. Cooper)	C.
				Mercer (C. W. Rampley)	C.
				Nashua (N. W. Griffith)	C.
				Milan (Anderson Produce Co.)	C.
				Mercer (Anderson Produce Co.)	C.
				Parkerton (C. A. Hoisington)	C.
				Pattonsburg (R. E. Russell)	C.
				Pattonsburg (Swift & Co.)	C.
				Princeton (Anderson Produce Co.)	C.
				Ravanna (C. E. Barnett)	C.
				Reger (H. N. Longfellow)	C.
				Stahl (Carl Bachman)	C.
				Stahl (E. E. Gillum)	C.
				Stahl (J. H. Martz)	C.
				Spickard (Kennady & Ellis)	C.
				Santa Rosa (B. F. Pearl)	C.
				Tindall (S. T. Clark)	C.
				Trenton (F. L. Hudson)	C.
				Reger (F. A. Wager)	C.
	F. M. Stamper Co.	54 per cent owned by W. F. Priebe Co.	Moberly	Hardin (W. A. Templeton)	C., E., P.
				Norborne (Dixon Produce Co.)	C., E., P.
				Madison (Madison Cream Station)	C.
				Moulton, Iowa (Harley Horn)	C., E., P.
				La Plata (Lindley-Buster Co.)	C.
				Macon (Macon Produce Co.)	C.
				Kirksville (Macon Produce Co.)	C.
				Keytesville (R. W. Cox)	C.
				Salisbury (F. M. Stamper, Jr.)	C.
				Paris (B. E. Vaughn)	C.
				Atlanta (G. R. Posey)	C.
Morris	American Butter Co.	Surplus output sold prior to June 3, 1918, under contract to Morris & Co.	Kansas City	Adrian (C. E. Le France)	C.
				Amoret (Turner-Warner-Barton)	C.
				Amsterdam (John W. White)	C.
				Appleton City (G. B. Dorward)	C.
				Archie (S. C. Stayton)	C.
				Austin (S. E. Moon & Bro.)	C.
				Blackburn (John H. Eckhoff)	C.
				Blairstown (C. L. Marksberry)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Morris	American Butter Co	Surplus output sold prior to June 3, 1918, under contract to Morris & Co.	*Missouri*—Continued.		
			Kansas City	Bolivar (Walter Russell)	C.
				Bronaugh (O. E. Feller)	C.
				Bronson, Kans. (Caleb Brown)	C.
				Bush City, Kans. (R. W. Smith)	C.
				Canton, Kans. (E. P. Magill)	C.
				Cedar, Kans. (Lester Lowrey)	C.
				Chilhowee (J. S. Strawsburg)	C.
				Clinton (Lebaugh Produce Co.)	C.
				Corning, Kans. (Farmers Union)	C.
				Creighton (Marler Produce Co.)	C.
				Deerfield (T. B. Welton & Sons)	C.
				Denton (H. A. Phipps)	C.
				Drexel (Main City) (Muchmore & Son)	C.
				Drexel (C. L. Williams)	C.
				Durham, Kans. (Durham Produce Co.)	C.
				Eldorado Springs (Eldorado Produce Co.)	C.
				Elsmore, Kans. (Fred Tippie)	C.
				Eudora (W. C. Fitzwater)	C.
				Farlington, Kans. (R. H. Wood)	C.
				Fontana, Kans. (J. N. Hopkins)	C.
				Freeman (H. A. Hart)	C.
				Garden City (Farmers Produce Co.)	C.
				Glenloch, Kans. (J. J. Stephens)	C.
				Golden City (J. A. Thaxton & Co.)	C.
				Greenfield (Frank Slawson)	C.
				Green Ridge (R. H. Nelson)	C.
				Hamilton (J. H. Wines)	C.
				Harrisonville (J. M. Cook)	C.
				Humansville (R. L. Moss)	C.
				Hume (J. W. Lindsay)	C.
				Irwin (E. F. McNary)	C.
				Kelly, Kans. (Schumacher & Ketter)	C.
				Kent, Kans. (Kent Creamery Co.)	C.
				Kingsville (D. M. Connell)	C.
				Kirwin, Kans. (Kirwin Produce Co.)	C.
				Knobnoster (Moreland & Co.)	C.
				Lacygne, Kans. (T. H. Cartmell)	C.

				Lamar (M. P. Kinkead)	C.
				Lebo, Kans. (W. A. Wilson)	C.
				Liberty (Vanderhoof & Wheeler)	C.
				Lowry City (W. C. Loney)	C.
				Marceline (Geo. A. Futtle)	C.
				Mapleton, Kans. (Elder & Amer)	C.
				Meta (N. J. Rowan)	C.
				Metz (Wiley Cox & Son)	C.
				Metz, No. 2 (M. Hutchinson)	C.
				Mike (S. R. Magee)	C.
				Miller (W. H. Lone)	C.
				Mirabile (John L. Clark)	C.
				New Lancaster, Kans. (H. R. Smith)	C.
				Olmger (J. L. Sexton)	C.
				Paola, Kans. (T. A. Reeves)	C.
				Plainville, Kans. (A. I. Case)	C.
				Pleasanton, Kans. (A. U. Epley)	C.
				Prescott, Kans. (Thayer & Smith)	C.
				Princeton, Kans. (Mrs. N. W. Shaw)	C.
				Raymore (C. R. Champion)	C.
				Richards (C. H. Compton)	C.
				Rothville (T. W. Morris)	C.
				Santa Fe (Perry Davis)	C.
				Strausburg (E. B. Strawsburg)	C.
				Summerfield, Kans. (R. O. Garrison)	C.
				Uniontown, Kans. (Ira M. Jones)	C.
				Vandalia (Alford & Webb)	C.
				Versailles (M. L. Joachimi)	C.
				Warrensburg (Farmers Clearing House Co.)	C.
				Waverly, Kans. (Hiram Bennett)	C.
				Wellsville, Kans. (A. E. Patterson)	C.
				Windsor (A. E. Bourke)	C.
			South Dakota.		
			North Dakota.		
			Nebraska.		
Swift	Swift & Co.		Lincoln	Auburn (W. L. Peterson)	C.
				Aurora (A. E. Houser)	C., P., E.
				Bennet (Farmers Union)	C., P., E.
				Berlin (C. H. Roettger)	C., P., E.
				Cambridge (F. Grandstaff)	C., P., E.
				Creston (J. Hamling)	C., P., E.
				Central City (J. K. Kerr)	C.
				Ceresco (B. C. Jones)	C.
				Crab Orchard (W. F. Madden)	C., P., E.
				Clarkson (Miss Mary Herynek)	C.
				Dawson (F. O'Grady)	C., P., E.
				Dorchester (Farmers Supply Co.)	C., P., E.
				Dannebrog (H. C. Rasmussen)	C.
				Elk Creek (R. C. Stanton)	C.
				Elmwood (I. M. Liston)	C., P., E.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co		*Nebraska*—Continued.		
			Lincoln—Continued.	Emmet (R. E. Harris)	C.
				Fairmont (Fairmont Mercantile Co.)	C., E.
				Firth (H. Oblink)	C., P., E.
				Farwell (G. A. Dilla)	C., P., E.
				Filley (J. J. White)	C., P., E., Prod.
				Fairbury (T. Thompson)	C., P., E.
				Genoa (J. C. Johnson)	C., P., E.
				Humboldt (C. Mann)	C., P., E.
				Hordville (Cohagen & Jensen)	C., Prod.
				Hadar (H. M. Raasch)	C.
				Johnson (Johnson Produce Co)	C., P., E.
				Liberty (M. F. Scott)	C.
				Milford (A. I. Kaufman)	C.
				Malmo (C. A. Robinson)	C.
				Murphy (Lee Lewis)	C., P., E.
				Marquette (L. P. Anderson)	C.
				Osceola (Farmers Union)	C., P., E.
				Orleans (A. B. McConaughy)	C.
				Pleasant Dale (Wm. Suska)	C.
				Phillips (W. R. Wadkins)	C.
				Rising City (W. J. Cocklin & Son)	C.
				Rockford (P. C. Heschmeyer)	C.
				Sargent (C. F. Day)	C.
				St. Paul (H. E. Jacobs)	C.
				Sterling (H. Yeast)	C.
				Touby (Kacirek Bros.)	C.
				Unadilla (H. H. Leacock)	C.
				Union (J. J. Richardson)	C., P., E.
				Ulysses (T. A. Baumgardner)	C.
				Western (J. E. Nickel)	C. P., E.
				Wilber (Wm. Skopec)	C.
				Wooping Water (Morgenson & Hart)	C.
			Kansas.		
Do	do		Hutchinson	Albert (C. E. Cain)	C.
				Arlington (W. H. Sims)	C.
				Basil (B. F. Reed)	C.
				Bucklin (Grace Dannecker)	C.

	Burdette (L. Engleskircher)	C.
	Burrton (F. W. Armstrong)	C.
	Byers (W. F. Brown)	C.
	Centerview (H. Duvall)	C.
	Chase (H. W. Schroeder)	C.
	Coolidge (Farmers U. C. Merc.)	C.
	Copeland (H. A. Clark)	C.
	Cunningham (Cunningham Merc. Co.)	C.
	Ensign (Andrew Stohr)	C.
	Eskridge (A. I. Hakes)	C.
	Fowler (L. B. Brady)	C.
	Garden City (H. C. Dodson & Co.)	C.
	Goodwell, Okla. (G. W. Brady)	C.
	Greensburg (M. C. Snyder)	C.
	Haggard (R. N. Norton)	C.
	Hanston (James Doyle)	C.
	Haven (Mrs. W. W. Wolf)	C.
	Haviland (J. W. McNutt)	C.
	Heizer (E. W. Sterling)	C.
	Hooker, Okla. (G. W. Dunn)	C.
	Hugoton (J. F. Pontias)	C.
	Ingalls (O. C. Price)	C.
	Kingman (Swift & Co.)	C., P., B., E.
	Lewis (F. W. Hemphill)	C.
	Little River (J. O. Thompson)	C.
	Logan, N. Mex. (D. C. Green)	C.
	Minneapolis (Swift & Co.)	C.
	McCracken (Percy Grumbine)	C.
	Meade (R. A. McGuire)	C.
	Midwell, Okla. (J. Eden)	C.
	Mound Ridge (P. J. Buehler)	C.
	Natoma (W. Scott)	C.
	Optimo, Okla. (W. Hubbard)	C.
	Otis (Fred J. Muth)	C.
	Patterson (A. G. Baehtol)	C.
	Plains (S. R. Pierson)	C.
	Rago (A. W. Caswell)	C.
	Salina (Swift & Co.)	C.
	Sublette (G. A. Tyler)	C.
	Sylvia (Yeager Produce Co.)	C.
	Timken (J. N. Pivonka)	C.
	Trousdale (A. L. Ferguson)	C.
	Varner (C. C. Perry)	C.
Parsons	Adair, Okla. (J. F. Skinner)	C.
	Blue Mound (A. B. Charles)	C.
	Brownsville (R. B. Schaffer)	C.
	Costello (H. A. Raymond)	C.
	Dennis (Pearl Good)	C.
	Dunlap (Dunlap Mercantile Co.)	C.
	Earlton (Jno. Gaughn)	C.
	Elk City (Mae Clark)	C.
	Hallowell (Geo. Cruickshank)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co.		*Kansas*—Continued.		
			Parson—Continued	Hammond (J. H. Miller)	C.
				Havanna (Ralph Sircoloumb)	C.
				Hiattville (Jno. Landers)	C.
				La Harpe (W. R. Mitchell)	C.
				Laneville (Clark Bros.)	C.
				Mildred (Sinclair & Son)	C.
				Savansburg (Olson Mercantile Co.)	C.
				Sherman City (J. H. Shiell)	C.
				Stark (D. G. Smith)	C.
				Wilsonton (W. H. Cooper)	C.
			Wichita	Andale (John Orth)	C.
				Attica (S. E. Trotter)	C.
				Belva, Okla. (C. E. Farrud)	C.
				Byron, Okla. (John Barcelon)	C.
				Caldwell (N. C. Smith)	C.
				Canadian, Tex. (Consumers Supply Co.)	C.
				Canton, Okla. (Canton Produce Co.)	C.
				Cheney (G. I. McGill)	C.
				Climax (J. W. Lunsford)	C.
				Colwick (J. Schreiner)	C.
				Corbin (G. F. Caffeit)	C.
				Crisfield (S. E. Trotter)	C.
				Eureka (F. H. Clark)	C.
				Freeport (Farmers' Union)	C.
				Gage, Okla. (C. C. Stallings)	C.
				Garden Plain (F. B. Linnebur)	C.
				Gerlane (H. R. Hensley)	C.
				Glazier, Tex. (T. J. White)	C.
				Grand Summit (W. J. Goodwill)	C.
				Hazelton (John Stewart)	C.
				Hereford, Tex. (I. H. Spratt)	C.
				Howard (H. H. Shannon)	C.
				Higgins, Tex. (Harland & Patton)	C.
				Kiowa (Swift & Co.)	C., P.
				Lipscomb, Tex. (Shahan & Son)	C.
				Milton (A. D. Wood)	C., P.
				Mobeetie, Tex. (T. O. Arnold)	C.

				Mooreland, Okla. (F. M. Spear)	C.
				Murdock (J. W. Smith)	C.
				Norwich (C. W. Henson)	C.
				Orienta, Okla. (Mrs. G. W. Miller)	C.
				Potwin (E. R. Hosman)	C.
				Protection (I. K. Rogers)	C.
				San Jon, N. Mex. (S. W. Newbank)	C.
				Shattuck, Okla. (Fred Becker)	C.
				South Haven (J. R. McGregor)	C.
				Tulia, Tex. (H. W. Simmons)	C.
				Waynoka, Okla. (Scott-Richie)	C.
				Woodward, Okla. (Swift & Co.)	C., P.
				Whitewater (H. M. Nolder)	C.
				Yewed, Okla. (Mrs. B. Craghead)	C.
				Zenda (R. McSperritt)	C.
Armour	A. S. Kininmonth Produce Co	50 per cent owned by Armour & Co	Winfield	Argonia (Jim Copeland)	C., E., P.
				Argonia (H. A. Westrup)	C.
				Atlanta (G. B. Darlington)	C.
				Atlanta (J. R. Ridpath)	C.
				Atlanta (Irvin Schmoyer)	C.
				Adams (J. W. Dickinson)	C.
				Attica (W. J. Grigsby)	C.
				Ashton (Peters & Stockton)	C.
				Akron (C. C. Pate)	C.
				Arkansas City (Hall & Finney)	C.
				Aline, Okla. (W. W. Mitchell)	C.
				Aledo, Okla (W. I. Fine)	C.
				Burden (J. E. Galyon)	C., E., P.
				Burns (Squire & Payton)	C.
				Bartlett (P. A. Reece)	C.
				Bluff City (H. B. Burtscher)	C.
				Beaumont (George Olds)	C.
				Belmont (H. W. Plush)	C.
				Braman, Okla. (G. N. Williamson)	C.
				Blair, Okla. (Farmers' Produce Co.)	C.
				Bessie, Okla. (H. B. Heinz)	C.
				Conway Springs (L. J. Barnum)	C., P., E.
				Cedar Vale (S. M. Copeland)	C.
				Cedar Vale (Adam Merchandise Co.)	C.
				Cloverdale(Cloverdale Cooperative Co.)	C.
				Cambridge (J. E. Davis)	C., P., E.
				Cassoday (W. T. Wallace)	C.
				Crystal Springs (D. W. Miller)	C.
				Caldwell (S. M. Baker)	C.
				Chetopa (C. A. Lennington)	C.
				Castleton (J. G. Schmitt)	C.
				Cheney (M. W. Heath)	C.
				Cameron, Okla. (C. A. Short)	C.
				Cleo, Okla. (J. D. Decker)	C.
				Casey, Okla. (J. D. Allen)	C.
				Camargo, Okla. (W. R. Hayden)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Armour	A. S. Kininmonth Produce Co.	50 per cent owned by Armour & Co.	*Kansas*—Continued. Winfield—Continued.	Capron, Okla. (C. W. Hubbard)	C.
				Cestos, Okla. (Sheldon & Parsons)	C.
				Carlyle (J. E. McClure)	C.
				Cherokee (Hanna & Grim)	C.
				Douglass (C. A. Carlman)	C., P., E.
				Dexter (Fannie Lee)	C.
				Dexter (W. D. Hale)	C.
				Duquoin (D. W. Miller)	C.
				Danville (C. H. Bredengard)	C.
				Dunlap, Okla. (W. G. Hutchinson)	C.
				Edna (M. L. Morgan)	C.
				Eaton (R. A. Sandborn)	C.
				Floral (Holloway & Feaster)	C.
				Florence (I. S. Arnold)	C.
				Grenola (Cruther & Meek)	C.
				Garden Plain (W. M. Gegan)	C.
				Gate, Okla. (C. F. Martin)	C.
				Glencoe, Okla. (O. E. Eby)	C.
				Glencoe, Okla. (H. C. Reeves)	C.
				Gracemont, Okla. (G. H. Forbes)	C.
				Hewins (M. E. Stark)	C.
				Hackney (J. D. Whitson)	C.
				Howard (Barackman Bros.)	C.
				Hunnewall (R. H. Boyer)	C.
				Harper (Dryden Bros.)	C.
				Harper (J. C. Davis)	C.
				Hooser (W. R. Wolfe)	C.
				Hunter, Okla. (Jenkins & Son)	C.
				Helena, Okla. (M. D. Packard)	C.
				Hobart, Okla. (J. N. Kim)	C.
				Higgins, Tex. (Congdon & Co.)	C.
				Isabel (N. J. Bentley)	C., E., P.
				Jet, Okla. (W. C. Daniels)	C.
				Keigley (J. W. Dungey)	C.
				Kendrick, Okla. (Curry-Wall Co.)	C.
				Knowles, Okla. (B. O. Wilson)	C.
				Kaw City, Okla. (Otto Burtscher)	C.
				Latham (W. E. Ferguson)	C.

Latham (Union Grange)	C.
Leon (R. R. Weaver)	C.
Lowe (H. B. Myers)	C.
Loeds (E. W. LeRoy)	C.
Lamont, Okla. (A. Yarusani)	C.
Lela, Okla. (Tanner & Stewart)	C.
Lahoma, Okla. (J. E. Penner)	C.
Lambert, Okla. (Fanny Pfeifer)	C.
Laverne, Okla. (Ray Produce Co.)	C.
Mound Valley (O. W. Bottorff)	C.
Medicine Lodge (H. V. Duncan)	C.
Milton (John W. Wise)	C.
Milan (L. V. Martin)	C.
Maple City (C. A. Knott)	C.
McWillie, Okla. (A. J. Woods)	C.
Moreland, Okla. (Miller Bros.)	C.
Medford, Okla. (E. O. Carr)	C.
Meeker, Okla. (E. A. Turner)	C.
Mount Park, Okla. (S. H. Winn)	C.
Meno, Okla. (J. E. Penner)	C.
Mulhall, Okla. (H. F. Duehning)	C.
Miami, Tex. (H. C. Hill)	C.
New Salem (A. T. Curfman)	C.
Mardin, Okla. (J. F. Smith)	C.
Nash, Okla. (W. W. Carrier)	C.
Otto, (J. R. Kennedy)	C.
Okeene, Okla. (Holter & Johnson)	C.
Protection (T. R. Myers)	C.
Piedmont (D. E. Shipman)	C.
Pretty Prairie (J. G. Schmitt)	C.
Pawnee, Okla. (J. R. Cates)	C.
Ponca City, Okla. (Walter Zeigler)	C.
Peckham, Okla. (W. B. Harp)	C.
Peckham, Okla. (R. H. Bradley)	C.
Pawnee, Okla. (Pawnee Produce Co.)	C.
Perry, Okla. (R. Swart)	C.
Payson, Okla. (W. F. Falwell)	C., E., P.
Rock (R. E. Kunkel)	C.
Douglass (Thomas Smiley)	C.
Ralston, Okla. (Henry Wertz)	C.
Rosston, Okla. (C. E. Webber)	C.
Sharon (E. E. Blackmore)	C.
Seden (E. L. Parks)	C.
Severy (C. B. Hallock)	C.
Sedgwick (Sedgwick Creamery)	C.
Supply, Okla. (F. O. Sible)	C.
Snyder, Okla. (Parlow Produce Co.)	C.
Stillwater, Okla. (O. Emmons)	C.
Shattuck, Okla. (George Schuliz)	C.
Sand Creek, Okla. (Sand Creek Mercantile Co.)	C.
Tisdale (L. T. Clark)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Armour	A. S. Kininmouth Produce Co	50 per cent owned by Armour & Co.	*Kansas*—Continued. Winfield—Continued.	Tonkawa, Okla. (W. H. McCubbin)	C.
				Tipton, Okla. (B. B. Slayton)	C
				Udall (Harold Miller)	C.
				Uncas, Okla. (W. E. Dassett)	C.
				Valeda (Helen Wimmer)	C.
				Vici, Okla. (Cubberly Bros.)	C.
				Winfield (A. S. K. Produce Co.)	C., E., P.
				Waunetta (W. J. Kirby)	C.
				Waukita, Okla. (T. J. Walton)	C
				Waynoka, Okla. (J. W. Hill)	C.
				Woodwark, Okla. (T. J. Matthews)	C.
				Yelton, Okla. (E. J. Adams)	C.
	Kentucky Creameries	Armour & Co	*Kentucky.* Louisville	English, Ind. (T. L. Grimes)	C.
				Milltown, Ind. (Flanigan Bros.)	C.
				Cropper (Wm. McCann)	C.
				Pleasureville (Kentucky Creameries)	P., E., B., C.
				Eminence (F. A. McCoy)	C.
				Ramsey, Ind. (W. R. Voyles)	C.
				Depauw, Ind. (Marshall Vaughn)	C.
				Ekron (J. M. Tuell)	C
				Shelbyville (Kentucky Creameries)	C., P., E., B.
				Fredericksburg, Ind. (F. T. Allen)	C.
				Corydon, Ind. (Ben Flock)	C.
				Greenville, Ind. (George Jacobi)	C.
				Auburn (Sydnor & Blewitt)	C.
				Adairville (Cooper Grocery & Hardware Co.)	C.
				Franklin (Holcomb & Sloss)	C.
				Campbellsville (L. E. McKinley)	C.
				Fordsville (H. Wilson)	C.
				Tell City, Ind. (J. M. Hicks & Son)	C.
				Tell City, Ind. (Lewis E. Cassidy)	C.
				Hodgenville (F. A. Tate)	C.
				Palmyra, Ind. (Boston & Standiford)	C.
				Russellville (Chas. Moore)	C.
				La Grange (Kentucky Creameries)	C., P., E., B.

				Marysville, Ind. (A. H. Humphrey)	C.
				Allensville (J. P. Wellborn)	C.
				Sanders (T. M. Baker, jr.)	C.
				Elizabethtown (Kentucky Creameries)	C., B., E., P.
				Taylorsville (Kentucky Creameries)	C., B., E., P.
				New Albany, Ind. (Kentucky Creameries).	C., B., E., P.
				Bagdad (Lee Long)	C.
				Maukport, Ind. (Jas. Flora)	C.
				Charlestown, Ind. (J. Johnson)	C.
				Martinsburg, Ind. (Kentucky Creameries).	C.
				Caneyville (G. H. Givens)	C.
				Irvington (J. W. Willis)	C.
				Cannelton, Ind. (F. H. Clemens)	C.
				Mount Washington (E. Carlton)	C.
				Campbellsburg (Miss Lizzie Scott)	C.
				New Middletown, Ind. (Wm. Hecklenan.	C.
				Elizabeth, Ind. (Barnes Bros.)	C.
				Seymour, Ind. (E. V. Clow)	C.
				Bethlehem, Ind. (A. H. Matthews)	C.
				Henryville, Ind. (Henryville Supply Co.).	C.
				Rocky Hill, Ky. (W. T. Compton)	C.
				Harned (S. H. Davis)	C.
				Sellersburg, Ind. (Kentucky Creameries).	C.
			Tennessee. *Alabama.* *Mississippi* *Louisiana.*		
			Oklahoma.		
Swift	Swift & Co.		Enid	Altoona (J. W. Lehenbaur)	C.
				Ames (Ames Produce Co.)	C.
				Anadarko (Anadarko Hide & Pro. Co.)	C.
				Arnett (S. D. Mathews)	C.
				Buffalo (Paul Perigo)	C.
				Beaver (J. H. Shearer)	C.
				Billings (Caskey Bros.)	C.
				Braithwaite (Aden & Son)	C.
				Butler (Butler Seed & Prod. Co.)	C.
				Brinkman (Brinkman Prod. Co.)	C.
				Carmen (Smith Grain Co.)	C.
				Carrier (C. Ford)	C.
				Cedardale (E. J. Webber)	C.
				Custer City (Farmers Pro. Co.)	C.
				Cleo (L. Miller)	C.
				Cloud Chief (H. Gernert)	C.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Swift & Co.		*Oklahoma*—Continued. Enid—Continued	Cold Springs (A. F. Henderson)	C.
				Dacoma (E. Applegate)	C.
				Deer Creek (Deer Creek Prod. Co.)	C.
				Dill City (E. Fontz)	C.
				Elk City (Swift & Co.)	C., Prod.
				Elk City (Sanitary Ice Cream Co.)	C.
				El Reno (El Reno Poultry & Egg Co.)	C.
				Erick (Erick Produce Co.)	C.
				Follett, Tex. (S. F. Cross)	C.
				Foss (Hackett & Armstrong)	C.
				Foss (Herring & Young)	C.
				Gate (R. F. Sinclair)	C.
				Geory (Wichita Hide & Produce Co.)	C.
				Greenfield (Greenfield Produce Co.)	C.
				Helena (A. F. Howe)	C.
				Hennessey (Howard & Son)	C.
				Homestead (C. Kerwood)	C.
				Hastings (J. M. Jackson)	C.
				Isabella (Oxley & Ellis)	C.
				Kingfisher (C. Halladay)	C.
				Lahoma (L. G. Hotchkiss)	C.
				Laverne (R. F. Sinclair)	C.
				Leady (Tackett Bros.)	C.
				Lela (Tanner & Stewart)	C.
				Logan (L. Erickson)	C.
				May (S. M. Jones)	C.
				Madison (L. Erickson)	C.
				Mutual (J. A. Rose)	C.
				Minco (C. B. Campbell)	C.
				Moorewood (Moorewood Produce Co.)	C.
				Nash (A. Gillispie)	C.
				Omega (E. W. McCandless)	C.
				Perry (W. F. Weiss)	C.
				Pocassett (Peck & Davis)	C.
				Rosston (R. F. Sinclair)	C.
				Rhea (A. R. Driskell)	C.
				Rocky (T. S. Patterson)	C.
				Rankin (T. H. Gillespie)	C.

	Ryan (N. H. Smith)	C.			
	Sentinel (H. W. Reeves)	C.			
	Speermore (F. A. Groves)	C.			
	Tempia (B. & O. Store)	C.			
	Texola (M. Johnson)	C.			
	Tiffin (J. M. Cates)	C.			
	Vernon, Tex. (G. B. Zachery)	C.			
	Vernon, Tex. (Davenport Bros.)	C.			
	Vici (C. H. Irwin)	C.			
	Wakita (J. W. Francis)	C.			
	Wandle (J. Eaton)	C.			
Oklahoma City	Avery (Geo. Coleman)	C.			
	Antlers (J. S. Earl)	C.			
	Broken Arrow (E. F. McGaugh)	C.			
	Cyril (Camp & Cook)	C.			
	Chandler (L. C. Goodman)	C.			
	Carnegie (Farmers Produce Co.)	C.			
	Coyle (B. S. Galusha)	C.			
	Cache (A. E. Petty)	C.			
	Colony (Dave Millner)	C.			
	Chickasha (Sunshine Grocery Co.)	C.			
	Coweta (E. A. Graham)	C.			
	Cement (C. E. Saner)	C.			
	Depew (A. L. Kienzle)	C.			
	Coalgate (J. W. Hurst)	C.			
	Pocasset (C. E. Freed)	C.			
	Fort Cobb (W. H. Richardson)	C.			
	Glencoe (T. E. Peters)	C.			
	Gotebo (David Funck)	C.			
	Gotebo (Gotebo Produce Co.)	C.			
	Granite (G. A. Mitchell)	C.			
	Hollis (New Produce Co.)	C.			
	Indiahoma (C. A. Brinton)	C.			
	Indianapolis (R. J. Harper)	C.			
	Kendrick (J. S. Jenkins)	C.			
	Komalty (W. F. Schultz)	C.			
	Laverty (Sara Carson)	C.			
	Letitia (S. D. Killian)	C.			
	Lindsay (Sawyer Produce Co.)	C.			
	Lexington (Gray Produce Co.)	C.			
	Mountain Park (Mountain Park Merc.)	C.			
	Mustang (L. E. Shupe)	C.			
	Noble (L. J. Brosius)	C.			
	Norge (Thomas & Field)	C.			
	Piedmont (L. G. Wessel)	C.			
	Pocasset (S. H. Hensley)	C.			
	Parkland (Miller & Son)	C.			
	Vinco (J. R. Butler)	C.			
	Pauls Valley (E. C. Pyle)	C.			
	Prague (B. S. Marchant)	C.			
	Richland (R. E. Rochelle)	C.			

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations	
				Location and name under which operated.	Products bought.
Swift	Swift & Co		*Oklahoma*—Continued.		
			Oklahoma City—Con.	Stratford (C. B. Perry)	C.
				Sparks (D. E. Thomas)	C.
				Sanger, Tex. (Brewer Bros.)	C.
				Stillwater (Blevins & Blevins)	C.
				Sterling (W. A. Sapp)	C.
				Tinney (W. E. Hayes)	C.
				Tuttle (Tuttle Produce Co.)	C.
				Tecumseh (Maxey & Williams)	C.
				Verden (Walker & Spooner)	C.
				Washita (R. C. Henry)	C.
				Wilzetta (W. M. Jenkins)	C.
				Wellington, Tex. (C. C. Jones)	C.
				Wellston (Chris. Anderson)	C.
			Arkansas.		
			Montana.		
			Wyoming.		
			Colorado.		
Swift	Swift & Co		Denver	Akron (F. M. Widdifield)	C.
				Brandon (J. W. Coons)	C.
				Calhan (Harry Rex)	C.
				Chivington (F. A. Cowles)	C.
				Collyer, Kans. (E. J. Voisin)	C.
				Egbert, Wyo. (C. B. Ward)	C.
				Farmington, N. Mex. (E. P. Woods)	C.
				Goodland, Kans. (Dawson Mercantile Co.)	C.
				Grinnell, Kans. (B. J. Rueschoff)	C.
				Kit Carson (M. H. Fletcher)	C.
				Maywood, Nebr. (R. D. Hall)	C.
				Menlo, Kans. (W. B. Conrad)	C.
				Monument, Kans. (J. W. Foulk)	C.
				Otis, (Mrs. F. B. Mutz)	C.
				Page City, Kans. (E. Gustafson)	C.
				Scott City, Kans. (R. I. Ruth)	C.
				Sharon Springs, Kans. (L. V. Thomas)	C.

				Sterling (W. F. Dunn)	C.
				Stratton, Nebr. (E. L. Strayer)	C.
				Towner (W. H. Mayne)	C.
				Wakeeney, Kans. (W. F. Swiggett)	C.
				Weskan, Kans. (W. S. Ferguson)	C.
				Wiggins (Chas. Foraker)	C.
				Wild Horse (G. M. Lampland)	C.
			New Mexico.		
			Arizona.		
			Utah.		
			Nevada.		
Swift	Western Meat Co.	78.7 per cent owned by Big Five; 44.5 per cent, Swift & Co.; 29.9 per cent, Morris & Co.; 2.6 per cent, Armour & Co.; 1.5 per cent, Wilson & Co., Inc.; 0.2 per cent, The Cudahy Packing Co.	Reno	Fallon [1]	C.
			Idaho.		
			Washington.		
			Oregon.		
	Union Meat Co.	100 per cent owned by Swift & Co.	Portland	Junction City (W. F. Nielson)	C., B., E., P.
				Goldendale, Wash. (Tebbs & Lawler)	C., B., E., P.
				Aurora (P. S. Will)	C., B., E., P.
				Youcalla (C. H. Burkholder)	C., B., E., P.
				McMinnville (D. C. Robbins)	C., B., E., P.
				Silverton (F. C. Dunlap)	C., B., E., P.
				Sheridan (C. H. Hauser)	C., B., E., P.
				Woodburn (C. V. Coynyne)	C., B., E., P.
				Willamina (J. H. Robison)	C., B., E., P.
				Amity (R. R. Massey)	C., B., E., P.
				Halsey (L. M. Byerly)	C., B., E., P.
				Goshen (M. D. Copenhaver)	C., B., E., P.
				Dayton (R. W. Kreitz)	C., B., E., P.
				Sublimity (N. J. Hermans)	C.
				Drain (B. P. Pfiester)	C.
				Irving (W. G. Klussman)	C.
				Washougal, Wash. (C. F. Peters)	C.
			California.		
	Swift & Co.		Ceres		
			Hardwick	Stratford (Stratford Portuguse Dairy Association).	C.
			San Luis Obispo	Cayucoas (E. Generdini)	C.
				Cambria (B. Baccala)	C.
				Paso Robles (Noyes & Son)	C.
				Lompoc (E. Klein)	C.
				Arroyo Grande (Arroyo Grande Commercial Co.).	C.

[1] Name of operating agency not reported.

Big packers' creameries, names of companies under which operated, relation of companies to packers, locations of creameries by State groupings, and buying stations, 1918—Continued.

Packer interest.	Name of company under which operated.	Relation of company to packer.	Location of creamery by State groupings.	Buying stations.	
				Location and name under which operated.	Products bought.
Swift	Western Meat Co	78.7 per cent owned by Big Five: 44.5 per cent, Swift & Co.; 29.9 per cent, Morris & Co.; 2.6 per cent, Armour & Co.; 1.5 per cent, Wilson & Co., Inc.; 0.2 per cent, The Cudahy Packing Co.	*California*—Continued.		
			Manchester	Corning [1]	C.
				Williams [1]	C.
				Willows [1]	C.
			Patterson	Los Banos [1]	C.
				Tranquillity [1]	C.
				Volta [1]	C.
			San Francisco	Bolinas [1]	C.
				Elk Grove [1]	C.
Armour	Oakdale Creamery	Trade name of Armour & Co.	Oakdale	Valley Ford [1]	C., E.

[1] Name of operating agency not reported.

EXHIBIT XII.

TRADE ESTIMATES OF PACKER CONTROL OVER CANNED AND PACKAGED FOODS.

The following are a few summarized statements from representative firms:

H. T. Quinlan & Co., St. Paul, Minn., says that Armour & Co., has bought up the entire catsup output of Louden & Co., Terre Haute, Ind., and the entire output of corn canners and other foodstuffs from other manufacturers.

Thomas S. Vallette, of Francis H. Leggett & Co., wholesale grocers, New York City, says that Armour, Swift, Wilson, and the other packers are huge speculators, controlling an enormous aggregate of capital, and where they don't manufacture themselves they buy up as much as possible of the output and resell. Last year they bought all of the canned goods they could and sold them for less prices than the wholesale jobbers.

J. T. Griffin, of Griffin Grocery Co., wholesale grocery firm, McAlester, Okla., reports that one of the proprietors of the Atlas Cereal Co., Kansas City, packers of rolled oats, advised them that Armour & Co. spent more for advertising their rolled oats last year than their total sales of rolled oats.

Henry C. Perkins, of Barber & Perkins, wholesale grocers, Philadelphia, Pa., says that they are beginning to feel very keenly the hand of the meat-packing combine on a great many staples in the grocery line outside of meats. This covers primarily almost all kinds of canned goods and many of the cereals, if not all. They say they were compelled to buy their supplies of canned pineapples from the Swift concern, Libby, McNeill & Libby, which should have come either from first hands or from surplus stocks held by the grocery-shipping trade. The same was true last year with tomatoes in cans, the meat packers controlling the tangible supply at the end of the season. So also rolled oats and corn meal sold by the Buffalo Cereal Co., of Buffalo, N. Y., a subsidiary of the packers.

Robert L. Montgomery, of William Montgomery & Co., wholesale grocers, Philadelphia, Pa., says that in the prior 60 or 90 days they had been unable to buy a pound of rice, yet the meat packers had large supplies and had been selling to retail grocers for 1 cent to 1½ cents per pound less than the regular market price. Also that Armour & Co. bought over 1,000,000 cases of canned tomatoes last year at from $1.20 to $1.35 per case, taking them out of the market and saying they would not sell them until the market price reached $2 per case. When the price reached that figure, he says, Armour & Co. sold tomatoes to their customers at $2 and that they were obliged to pay the same price for what they needed to fill their orders. He also says that the meat packers entered the grapejuice business a few years ago, and in a short time formed a holding company with which most of the jobbers of grapejuice became affiliated.

James Hewitt, of H. Kellogg & Son, importers and wholesale grocers, Philadelphia, Pa., reports that the packers now control the canned-tomato market, and that as to fruits, pineapples, cherries, and condensed milk they have either bought out or built a sufficient number of canneries to control the supply. He says that this policy of the packers crushes the small canners, and that if they are allowed to go on with their activities they will eventually control and manipulate all of these products. He further says that they are

gradually encroaching on the grocery trade generally, driving dealers out of business and forcing them into the position of becoming their employees and distributing agents for them.

William J. Young, broker and commission merchant, Philadelphia, Pa., reports substantially the same with regard to Armour & Co.'s control over canned tomatoes as Robert L. Montgomery, of Montgomery & Co., Philadelphia, Pa. He reports also that the packers are in the distribution of rice, controlling the supply and refusing to sell to wholesale grocers.

William G. Bonstedt, of the Wm. G. Bonstedt Co., brokerage and commission merchants, Philadelphia, Pa., reports that the packers are both buying and putting up their own canneries in Philadelphia for fruit, vegetables, and fish; that Armour & Co. lately bought an oatmeal mill from Kern Bros., Milwaukee, Wis., and the Buffalo Cereal Co., Buffalo, N. Y. He complains of this company's forcing its way into the pineapple business, and where it was unable to buy the output of canning companies, of its attempting to compel them to sell their plants. He says that if the large meat packers are not taken care of they will eventually control all of the food products of the United States.

William D. Mullen & Co., wholesale grocers, Wilmington, Del., reports that of all the large packers, Armour & Co., is most active in its territory; that Armour & Co. purchases tomatoes very largely in this territory for its own labels.

Mr. D. F. Stilling, of Reid, Murdock & Co. (Inc.), Chicago, Ill., says that at the Cleveland convention in 1917 Libby, McNeill & Libby had one buyer for each of the important items in the canned-food line, who had positive instructions to buy every case of goods they could from the packers who attended the convention. They not only bought at the prices offered, but they bid up the price to the canner in order to get these goods away from the regular wholesale channels. All during 1918, he further states, brokers said that the stockyards packers have given them carte blanc to buy at any price all the goods their canning accounts had to offer, and that Swift and Armour attempted to buy a large portion of the pineapple pack of 1918.

Walter Birkin, of the American Groceries Brokerage Co., Chicago, Ill., says that the effect of the large packers on his field—evaporated milk and pickles—is marked, the tendency being to cut out all middlemen through the control of the source of supply.

Arthur Williams, of R. C. Williams & Co., wholesale grocers, New York City, says that Wilson & Co. bought out the vegetable packing concern of Grafton Johnson, of Indiana, from which Williams & Co. formerly bought as high as 17,000 cases of canned goods per annum. This not only cut off one source of supply of Williams & Co., but Wilson & Co. by this move became an active competitor. Libby, McNeill & Libby, a Swift concern, bought out the tomato catsup and chili sauce manufacturer, Mullen-Blackledge-Nellis Co., of Brazil, Ind. After this purchase he says they refused to sell goods except under their own labels, and this cut off the source of supply of the Royal Scarlet, the best brand of catsup sold by Williams & Co.

E. C. Lavender, of the Wichita Wholesale Grocery Co., Wichita, Kans., reports that a local broker visited him on October 23, 1918, and told him that he had been empowered by Armour & Co., to buy from the Wichita Wholesale Grocery Co. all the canned corn which that company had on hand or had contracted for upon a basis of 7½ per cent profit over the cost at canning factory. He further says that the proposition was turned down for the reason that the merchandise had been bought for his own trade. He said he had reasons to believe that every wholesale grocer in his territory was made a similar proposition.

F. A. Aplin, of J. K. Armsby, broker, New York City, estimates that the packers at the present time control one-fifth of the salmon canneries of the United States, and believes that they will "murder" the small businesses, one by one, in the most heartless fashion until they reach their goal—complete domination.

The salesmen of R. C. Williams & Co., importers, exporters, and manufacturers of food products, New York City, were asked in August, 1918, by the company certain questions with respect to the competition of the big packers. These questions, with a synopsis of the replies, were furnished the Commission and appear below.

Question (*a*). To what extent has the grocers' wholesale business been cut into by the big packers in the locality in which you travel?

(1) H. G. Hewey, 597 Main Street, Lewiston, Me.: 50 per cent at least—constantly growing—wholesale grocers out in 20 years.

(2) W. L. Jackson, 32 West Eighty-second Street, New York City: No reply.

(3) Fred W. Vanderheive, 11 Warwick Boulevard, Jamaica, Long Island: Very much—Every week they have some Special which opens up business for their other foods.

(4) Vernon R. Hallock, Riverhead, Long Island: 15% to 20%—not including butter, eggs, meat, etc.

(5) G. F. Williams, box 21 Sayre, Pa.: No reply.

(6) H. B. Strait, 74 Wallkill Avenue, Middletown, N. J.: Cut heavily, particularly canned goods and cereals.

(7) C. R. Fielding, 915 Louisiana Avenue, Washington, D. C.: No reply.

(8) F. E. Handy: 25%.

(9) William Murphy reports: William H. Jordan, 116 Riverdale Ave., Yonkers, bought formerly large amount of us. Now buys full line from Armour right down to coffee.

(10) F. S. & R. D. Mumma, Mechanicsburg, Pa.: 10%.

(11) Geo. W. Hennison, box 1223, Belmar, N. J.: 20%.

(12) E. W. Kibbe, 19 Warrenton Street, Hartford, Conn.; 50% on canned goods and other items.

(13) W. J. Amerman, Moravia, N. Y.: 25%.

(14) W. P. Thomson, box 445, Spartanburg, S. C.: Not less than 25%.

(15) Harry G. Seitz, 323 East Sixty-sixth Street, New York City: 25%.

(16) Harry Noll, 301 East One hundred and ninety-third Street, New York City: 25%.

(17) T. K. Potter, 267 Park Place, Brooklyn, N. Y.: 10 to 15%.

(18) H. W. Arthur, Smithtown Branch, Long Island: Taken practically whole business in canned meats and cereal goods.

(19) L. W. Lyon, 43 Central Avenue, Dover, N. J.: Fully 25%.

(20) Theo. F. Arfsten, 375 Hancock Street, Brooklyn, N. Y.: Fully 25%.

(21) P. J. Cawley, 3140 Kingsbridge Terrace, N. Y.: Inroads big—selling everything but sugar and flour and a few other nonprofitable items.

(22) L. Feuerberg, 889 St. Nicholas Avenue, New York: 50% canned goods.

(23) F. C. Magie, Boonton, N. J.: 10%.

(24) L. R. Clom, box 276, Scranton, Pa.: Canned goods, 30%.

(25) N. H. Suirberian, 56 Hudson Street, New York City: Let packers combine as now and in few years no jobbers.

(26) J. D. Haviland, 27 Greene Avenue, Norwich, Conn.: In meats, pickles, cereals at least 50%.

(27) Harry Freedman, 1625 Forty-second Street, Brooklyn, N. Y.: About 1/8.

(28) H. P. Osment, 226 Chamber of Commerce, Birmingham, Ala.: 25%, including dairy products.

Question (*b*). Can you give concrete figures from your own business?

(1) No.
(2) No reply.
(3) At least 2,000 per month.
(4) No reply.
(5) No reply.
(6) No reply.
(7) No reply.
(8) No reply.
(9) No reply.
(10) No reply.
(11) No reply.
(12) No reply.
(13) No reply.
(14) No reply.
(15) Approximately $1,250.00 per month.
(16) No reply.
(17) No reply.
(18) No reply.
(19) No reply.
(20) No reply.
(21) 25% if not more.
(22) No reply.
(24) No reply.
(23) No reply.
(25) All instances packers' prices under wholesale grocers; if this were permanent condition, it would be blessing to retailer and consumer, but their object is to gain ascendency and then make up for past sacrifice.
(26) No reply.
(27) No reply.
(28) No reply.

Question (*c*). What is the explanation of such inroads by the big packers as have come to your notice?

(1) Branch houses in all districts—can supply trade short notice.
(2) Prices some canned goods, rice, cheese, etc., close to our cost—They plan to first secure the business then increase the profit, which they must and will do. The existence of their plants in all cities and delivery service.
(3) Local houses and delivery—lower prices. Memo: Wilson & Co. selling Evap. milk $5.06 case: 50¢ lower than our present cost on "Royal Scarlet."
(4) Principally price.
(5) No reply.
(6) Cut prices with eventual object of killing all competition.
(7) Packers claim to handle additional articles at no extra expense, thereby selling cheaper. [However, if this is true, overhead is charged wholly to meat or other lines in which the packers are established, whereas it should, under a proper distribution of expense, be apportioned in part to these added lines.]
(8) Branch houses sell and hold goods, delivering as wanted for several months, canned goods, cheese, etc.
(9) No reply.
(10) Side issue and selling expense not increased materially.
(11) Selling at most ridiculous prices, regardless of market.

(12) No reply.

(13) No reply.

(14) Buying up by the packers of goods and storing in warehouses which they have in every town of any consequence—they have goods when others have none.

(15) Selling much lower than I can offer.

(16) Combination sales.

(17) No reply.

(18) Sell goods at same prices as sell dealers and prepay freight.

(19) Special prices, special deliveries—store deliveries in sections where we sell f. o. b. New York.

(20) Lower Prices.

(21) No reply.

(22) Impressing the retailers that they are manufacturers and packers, and giving them opportunity of direct buying.

(23) Lower prices & giving of free storage on perishable goods.

(24) Cut prices.

(25) Government having controlled profits on meats and their by products, the packers are entering field of approximately 9000 different articles, most not under regulation.

(26) Roads are full of their specialty men—They bring their goods to their branch houses without expense, by loading them into their meat cars, no extra freight being charged.

(27) Unfair cutting prices.

(28) Their Salesmen state they could not sell enough fresh meats to justify, and they sell groceries to get volume—Many times sell at less than fair margin to get business.

Question (*d*). What measures of a constructive or remedial nature would you suggest?

(1) Nothing but Government interference. Armour controls practically all food products in country to-day.

(2) Go after best trade—This appreciates services and these will always be enough to keep us busy.

(3) No reply.

(4) Stop direct selling.

(5) Jobbers not to sell packers' brands. Memo: Packers, especially Armour, working hard putting in pkg. oats, corn flakes, co. milk, etc. Take one thing at time and sell every store.

(6) Government regulation of minimum as well as maximum price—or limiting trusts to their original or one line, as has been done in other countries—or complete severance of different branches, so they would really compete.

(7) No reply.

(8) Not allow to store and hold goods sold at branch houses—making their goods all on same terms.

(9) No reply.

(10) Equal competition. Memo: We are handicapped by their local storage facilities—Armour, Wilson & Dold getting fair distribution of canned goods and other lines.

(11) Law prohibiting meat house monopolizing food product business.

(12) Divorce packing from wholesale business—or will put all small wholesale grocers out of business in a short time.

(13) No reply.

(14) No reply.

(15) Their methods of combination sales are such that merchant is easily tricked. Eggs frequently used as a leader to put over canned goods.

(16) Hold them to meats exclusively. Memo: They handle and undersell us in practically everything: All canned vegetables and fruits, dried fruits, coffee, sardines, worcester sauce, etc. One of Wilson & Company's salesman urged Harry Noll to come with their organization, saying he would make $85 to $90 a week, adding "Do you know the Guarantee Trust Co. is behind Wilson & Co."

(17) No reply.

(18) Take off their men and sell direct to dealers.

(19) Refuse to sell sugar and unprofitable goods to customer of packer—tell him to buy that line of packer also.

(20) No reply.

(21) Confine them to meats. Unless curbed, packers will have 100% profitable business.

(22) No reply.

(23) Restrict them to the packing business, where they belong.

(24) Confine them to meat business and its by-products.

(25) By ordering meat packers to stick to their own line, or having them make distribution through legitimate channels.

(26) No reply.

(27) Only one real and constructive remedy, that is Gov't control and operation. The trade do not like Armour's goods, but if they give them away the trade buys.

(28) See that they pay regular freight rates and are not allowed to send groceries and glass goods at meat rates in same cars with meat products. Have them pay wholesale grocers' licenses.

EXHIBIT XIII.

RICE SALES BY ARMOUR & CO., ACCUMULATED BY MONTHS, MARCH, 1917, TO JANUARY, 1918.[1]

Month.	Pounds sold.	Amount received.
1917.		
March	[1] 286,111	$13,809.07
April	[1] 2,100,560	117,235.18
May	[1] 4,634,649	290,053.43
June	[1] 6,048,691	395,471.07
July	[1] 8,743,597	588,857.90
August	[1] 10,315,710	706,622.34
September	[1] 11,113,201	766,737.88
October	[1] 12,558,983	876,559.26
November	[1] 1,502,783	119,250.92
December	[1] 2,435,296	194,387.97
1918.		
January	3,581,208	286,747.67
Total to Oct. 27, 1917	12,558,983	876,559.26
Total, 3 months	3,581,208	286,747.67
Grand total	16,140,191	1,163,306.93

[1] Each month includes all previous months' accumulated sales up to end of fiscal year ending Oct. 27, 1917. New year's figures begin with November sales.

EXHIBIT XIV.

RICE PURCHASES BY ARMOUR & CO., IN STATED PERIODS, 1917–18.

Grade of rice.	On Sept. 17, 1917.		From Sept. 18 to October, 1917.		From Oct. 2 to Oct. 24, 1917.		Total from Sept. 17 to Feb. 2, 1918.	
	Pounds.	Price.	Pounds.	Price.	Pounds.	Price.	Pounds.	Price.
	Cwt.	*Cents.*	*Cwt.*	*Cents.*	*Cwt.*	*Cents.*	*Cwt.*	*Cents.*
V. B. Honduras, in bags	1,250	9–9½	.....	.....	90	.....	1,340	.....
V. B. Blue Rose	2,355	8¾–9½	150	.....	130	.....	2,615	.....
Helmet Honduras	535	8¼–8½	.....	.....	50	.....	635	.....
Helmet Blue Rose	1,440	.....	.....	.....	770	.....	2,210	.....
Honduras, in cartons	4,380	9	1,800	.....	2,877	.....	9,477	9 –9⅜
Blue Rose	8,142	8¾–9	2,070	.....	534	.....	11,346	.....
Fancy No. 1, Honduras, in pockets	4,460	7 –7½	13,550	7 –7¾	10,220	.....	31,761	7 –8⅜
Fancy No. 2, Honduras	1,315	5¾–6	4,650	5¾–6	2,860	.....	11,345	5¾–6½
Fancy screenings	425	5½	3,700	5½	10,895	.....	15,305	5½–6
Fancy Blue Rose, in pockets	25,614	7¼–7½	15,620	6¾–7¾	15,355	.....	103,539	6¾–7¾
Fancy Blue Rose, No. 2, in pockets	2,580	6	2,700	5¼–6	150	.....	8,330	5½–7
Fancy Blue Rose screenings	855	5½	500	5½	150	.....	2,605	5½–6
Japanese rice, No. 1	3,080	7	2,050	.....	100	.....	5,815	7
V. B. natural brown, in pockets	240	8½	.....	.....	120	.....	540	8½
Total	56,671	.....	46,790	.....	44,301	.....	206,863	.....

EXHIBIT XV.

TONNAGE SALES[1] OF LARD SUBSTITUTES BY THE FIVE BIG PACKERS, 1915–1918.

	1915 (pounds).	1916 (pounds).	1917 (pounds).	1918 (pounds).
Swift & Co.[2]	145,992,500	122,040,400	164,947,600	188,978,200
Armour & Co.[3]	101,946,548	97,933,531	113,381,121	137,619,132
Morris & Co.[4]	49,304,830	42,998,410	61,092,929	56,071,311
Wilson & Co., Inc.[5]	45,257,591	48,248,030	63,110,636	51,929,532
Plants[6]	25,737,940	20,303,341	31,012,066	30,480,121
Branches	19,519,651	27,944,689	32,098,570	21,449,411
The Cudahy Packing Co.[7]	42,200,000	27,630,000	38,660,000	51,090,000

[1] The sales given in this exhibit do not include those made by companies or selling agencies controlled through means other than stock ownership by the principal packer company. Sales, for example, made by affiliated companies controlled through stock ownership by the principal family interested in the packer company are not included.

[2] The figures given represent the output of Swift & Co.'s plants. Sales which would include purchases as well are not available.

[3] Sales for fiscal years ending Oct. 31.

[4] Included in these totals there are for each year approximately 1,000,000 pounds bought by the branch houses on the outside and sold by them.

[5] Some duplication is involved in the Wilson sales, owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

[6] The sales of three plants only are included: Chicago, Kansas City, and Oklahoma City.

[7] Sales through all Cudahy plants, car routes, and branches and the following subsidiary companies are included: The Dow Cheese Co., Sunlight Produce Co., and the D. E. Wood Butter Co.

EXHIBIT XVI.

TONNAGE SALES[1] OF OLEOMARGARINE BY THE FIVE LARGE PACKERS, 1915–1918.

	1915 (pounds).	1916 (pounds).	1917 (pounds).	1918 (pounds).
Swift & Co.[2]	25,933,000	28,892,700	53,310,900	77,210,500
Armour & Co.[3]	25,453,630	21,396,440	32,340,463	42,972,840
Chicago	13,280,284	11,831,857	17,967,026	22,952,863
Kansas City	2,354,013	2,466,132	4,852,271	5,921,437
Friedman Manufacturing Co	9,819,333	7,098,451	9,521,166	14,098,540
Morris & Co.	12,693,026	15,612,929	30,716,924	30,963,554
Wilson & Co., Inc.[4]	7,877,264	11,543,745	14,271,204	17,912,565
Plants[5]	4,651,472	6,545,466	8,159,689	12,092,299
Branches	3,225,792	4,998,279	6,111,515	5,820,266
The Cudahy Packing Co.[6]		851,482		2,680,000

[1] The sales given in this exhibit do not include those made by companies or selling agencies controlled through means other than stock ownership by the principal packer company. Sales, for example, made by affiliated companies controlled through stock ownership by the principal family interested in the packer company are not included.

[2] The figures given represent the output of Swift & Co.'s plants. Sales which would include purchases as well, are not available.

[3] Sales for years ending June 30.

[4] Some duplication is involved in the Wilson sales owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

[5] The sales of three plants only are included: Chicago, Kansas City, and Oklahoma City.

[6] Sales reported as not available for 1915. Company reports it did little or no butterine business during 1917. For 1918, sales through all Cudahy plants, car routes, and branches and the following subsidiary companies are included: The Dow Cheese Co., Sunlight Produce Co., and the D. E. Wood Butter Co.

EXHIBIT XVII.

TONNAGE SALES[1] OF CANNED FOODS BY THE LARGER PACKERS,[2] 1915–1918.

A.—SWIFT & CO.

[The sales below are by Libby, McNeill & Libby (a Swift concern), the only figures available from any of the Swift companies.]

	1915	1916	1917	1918	Totals.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Pineapple[3]	13,574,739	21,969,916	35,148,197	47,964,549	118,657,401
Fruits	36,424,628	50,194,874	36,829,500	58,426,219	181,875,221
Vegetables (Pacific coast)		1,781,755	15,606,082	32,864,965	50,252,802
Asparagus	3,976,691	10,675,792	10,690,784	9,749,287	35,092,554
Pickles	22,547,433	28,480,582	32,611,390	37,020,575	120,659,980
Olives	1,540,948	3,561,040	13,037,128	15,024,243	33,163,359
Salmon[3]	16,698,062	20,483,536	39,998,367	47,195,682	124,375,647
Milk[3]	20,890,459	47,122,425	112,533,725	153,480,638	334,027,247
Catsup	2,479,300	2,061,383	4,381,079	7,682,654	16,604,416
Tomatoes[3]	9,829,658	27,315,853	28,946,751	8,756,075	74,848,337
Mustard	1,025,480	728,160	1,368,694	3,564,168	6,686,502
Vinegar	318,330	227,070	680,067	167,602	1,393,069
Preserves	2,198,633	3,021,750	3,899,879	6,488,496	15,608,758
Kraut[3]	5,489,004	4,298,775	8,451,887	18,810,192	37,049,858

[1] The sales given in this exhibit do not include those made by companies or selling agencies controlled through means other than stock ownership by the principal packer company. Sales, for example, made by affiliated companies controlled through stock ownership by the principal family interested in the packer company are not included.

[2] Sales are not available from Morris & Co. and The Cudahy Packing Co.

[3] After the report had gone to press Libby, McNeill & Libby revised its sales figures on the items below for 1915 and 1916. A comparison of the company's earlier figures with those below show the latter to be larger for each item except for that of tomatoes for 1916:

	1915	1916
	Pounds.	*Pounds.*
Pineapple	26,056,521	46,602,826
Salmon	24,554,580	25,981,700
Milk	36,917,290	56,785,051
Tomatoes	No change.	16,415,805
Kraut	15,138,355	14,515,110

Tonnage sales of canned foods by the larger packers, 1915 1918—Continued.

A.—SWIFT & CO.—Continued.

	1915	1916	1917	1918	Totals.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Peas	.....	.....	9,523,034	653,062	10,176,096
Squash	.....	142,444	567,000	.....	709,444
Sweet potatoes	502,251	587,615	492,976	423,996	2,006,838
Pumpkin	199,812	245,124	12,487	85,238	542,661
Spinach	373,416	2,247,621	218,305	41,759	2,881,101
Corn	.....	.....	11,571,409	866,627	12,438,036
Hominy	.....	.....	.....	24,795	24,795
Totals	138,068,844	225,145,715	366,568,741	449,290,822	1,179,074,122

B. ARMOUR & CO.[1]

[Sales for 1915 are not available.]

	1916[2] (included in "Canned vegetables and sundries" are canned vegetables, fish, evaporated milk, condiments, rice, dried fish, and peanut butter).	1917[2] (included in "Canned vegetables and sundries" are canned vegetables, evaporated milk, condiments, rice, and peanut butter).	1918[2] (included in "Canned vegetables and sundries" are canned vegetables, evaporated milk, condiments, and rice).
	Pounds.	*Pounds.*	*Pounds.*
"Canned vegetables and sundries"	61,386,920	92,485,470	173,181,503
Canned and dried fish	.....	15,274,423	20,346,164
Peanut butter	.....	.....	2,539,181
Totals	61,386,920	107,759,893	196,066,848

[1] Tonnage sales of canned fruits and preserves are not available. The sales here reported are for "Canned vegetables and sundries." For the year 1916 the sales of canned and dried fish are included, but segregated for the years 1917 and 1918. For 1916 and 1917 the sales of peanut butter are included, but segregated for 1918. Included with the sales of canned vegetables, evaporated milk, and condiments in all the years are the sales of rice.

[2] Sales are for fiscal years ending Oct. 31.

C.—WILSON & CO., INC.[1]

	Condiments and preserves (pounds).	Canned meats (pounds).	Canned fish, fruits, and vegetables (pounds).
1915.			
Plants[2]	2,992,801	9,149,003	[3]
Branches	1,497,530	2,754,149	2,331,911
Totals	4,490,331	11,903,152	2,331,911
1916.			
Plants[2]	4,255,862	21,603,058	[3]
Branches	3,937,137	5,082,998	[3]
Totals	8,192,999	26,686,056	[3]
1917.			
Plants[2]	7,298,967	22,049,138	19,051,074
Branches	3,614,502	6,342,904	6,304,005
Totals	10,913,469	28,392,042	25,355,079
1918.			
Plants[2]	25,729,002	60,597,449	54,542,440
Branches	7,001,536	4,893,724	34,375,176
Totals	32,730,538	65,491,173	88,917,616

[1] Some duplication is involved in the Wilson sales owing to the inclusion of certain interplant shipments and shipments between plants and branch houses which the company reports as being unable to exclude.

[2] The sales of three plants only are included: Chicago, Kansas City, and Oklahoma City.

[3] No sales reported.

EXHIBIT XVIII.

CANNED AND DRIED VEGETABLES DISTRIBUTED BY CERTAIN OF THE FIVE LARGE PACKERS, SHOWING RANGE IN KINDS AND BRANDS.

FROM ARMOUR & CO.'S 1917 PRICE LISTS.

CANNED VEGETABLES.

Asparagus, large white, Veribest brand.
Asparagus, green giant, Veribest brand.
Asparagus, large green, Veribest brand.
Asparagus, mammoth white, Veribest brand.
Asparagus, medium white, Helmet brand.
Asparagus, medium green, Helmet brand.
Asparagus, small white, Fowler brand.
Asparagus, small green, Fowler brand.
Baked beans, Veribest brand.
Beans, cut string, Helmet brand.
Beans, Tiny Refugee, Veribest brand.
Corn, standard sweet, Fowler brand.
Corn, Country Gentlemen, Veribest brand.
Corn, extra standard, Helmet brand.
Hominy, Helmet brand.
Hominy, Hoosier Bell brand.
Peas, fancy tiny sifted Early June, Veribest brand.
Peas, Early June, Helmet brand.
Peas, fancy Alaska, Veribest brand.
Peas, extra standard Alaska, Helmet brand.
Peas, Calhoun, soaked.
Peas, Belleflower, soaked.
Pumpkin, in water.
Sauerkraut.
Spinach, Packers' brand.
Spinach, Helmet brand.
Tomatoes, standard.
Tomatoes, Veribest brand.
Tomatoes, Helmet brand.
Tomatoes, extra standard, Veribest brand.
Tomato purée, in cans.
Vegetable soups.

BEANS IN BAGS.

Dried California Lima beans, 100-pound sacks.
Rapids, 165-pound bags.
California small whites, 100-pound bags.
Choice red kidney beans, 145-pound sacks.
Cranberry or Roman beans, 100-pound sacks.
Mexican Garbanzo beans, 220-pound sacks.
Soja beans, 100-pound sacks.
Pinto beans, 100-pound sacks.
Brown Swedes, 150-pound sacks.
Pinks, 100-pound sacks.
Choice hand-picked Navy beans.
Choice hand-picked Michigan pea beans, 100-pound sacks.
Lima beans, 80-pound sacks.

FROM 1917 PRICE LIST OF WILSON & CO., INC.

CANNED VEGETABLES.

Asparagus, mammoth white peeled, Certified brand.
Asparagus, mammoth green peeled, Certified brand.
Asparagus, large white, Certified brand.
Asparagus, white, Wilsco brand.
Asparagus, large green, Wilsco brand.
Asparagus, cut, Wilsco brand.
Asparagus tips, medium white, Certified brand.
Asparagus tips, medium green, Certified brand.
Asparagus tips, medium white, Wilsco brand.
Asparagus tips, medium green, Wilsco brand.
Asparagus points, Advance brand.

Canned and dried vegetables distributed, etc.—Continued.

FROM 1917 PRICE LIST OF WILSON & CO., INC.—Continued.

CANNED VEGETABLES—Continued.

Beans, Refugee, stringless cut, Certified brand.
Beans, Refugee, stringless whole, Certified brand.
Beans, Refugee, stringless small whole, Certified brand.
Beans, Refugee, stringless extra small whole, Certified brand.
Beans, golden wax, cut, Certified brand.
Beans, golden wax, whole small, Certified brand.
Beans, golden wax, extra small whole, Certified brand.
Beans, cut string, Wilsco brand.
Beans, whole Refugee, Wilsco brand.
Beans, cut golden wax, Wilsco brand.
Beans, whole golden wax, Wilsco brand.
Beans, Refugee, Advance brand.
Beans, cut string, Advance brand.
Beans, whole string, Advance brand.
Beans, Lima, small green, Certified brand.
Beans, lima, tiny, Certified brand.
Beans, lima, medium, Wilson brand.
Beans, lima, ripe, Advance brand.
Beans, red kidney, Certified brand.
Beans, red kidney, Wilsco brand.
Beans, red kidney, Advance brand.
Beets, small red, Certified brand.
Beets, tiny red, Certified brand.
Beets, Wilsco brand.
Beets, cut, Advance brand.
Beets, whole, Advance brand.
Corn, Maine, Certified brand.
Corn, sweet, Certified brand.
Corn, fancy, Wilsco brand.
Corn, Advance brand.
Hominy, Wilsco brand.
Hominy, Advance brand.
Okra, whole small, Certified brand.
Okra, with tomatoes, Certified brand.
Okra, cut, Wilsco brand.
Okra, with tomatoes, Wilsco brand.
Okra, cut, Advance brand.
Peas, early June, tiny sifted, Certified brand.
Peas, early June, superfine, Certified brand.
Peas, early June, small sifted, Certified brand.
Peas, early June, fine, Certified brand.
Peas, early June, sifted, Certified brand.
Peas, early June, extra sifted, Wilsco brand.
Peas, early June, sifted, Wilsco brand.
Peas, early June, Advance brand.
Peas, early June, sifted, Advance brand.
Peas, sweet, fine sifted, Certified brand.
Peas, sweet, wrinkled, Certified brand.
Peas, sweet, sifted, Certified brand.
Peas, sweet, wrinkled, Wilsco brand.
Peas, sweet, sifted, Wilsco brand.
Peas, sweet melting, Certified brand.
Peas, telephone, Certified brand.
Peas, marrowfat style, Wilsco brand.
Peas, marrowfat, Advance brand.
Pork and beans, Certified brand.
Pork and beans, with tomato sauce, Certified brand.
Pork and beans, Wilsco brand.
Pork and beans, with tomato sauce, Wilsco brand.
Pumpkin, Certified brand.
Pumpkin, Wilsco brand.
Pumpkin, Advance brand.
Sauerkraut, dry packed, Certified brand.
Sauerkraut, solid pack, Wilsco brand.
Sauerkraut, California pack, Advance brand.
Spinach, Certified brand.
Spinach, Wilsco brand.
Spinach, Advance brand.
Squash, Certified brand.
Succotash, Certified brand.
Succotash, Wilsco brand.
Succotash, with ripe limas, Advance brand.
Sweet potatoes, Certified brand.
Sweet potatoes, Wilsco brand.
Sweet potatoes, Advance brand.
Tomatoes, extra fancy, Certified brand.
Tomatoes, fancy, Wilsco brand.
Tomatoes, Advance brand.
Tomatoes, concentrated or purée, Certified brand.

Canned and dried vegetables distributed, etc.—Continued.

FROM SWIFT & CO.'S 1916 PRICE LIST.

CANNED VEGETABLES.

Asparagus, giant white.
Asparagus, giant green.
Asparagus, mammoth white.
Asparagus, mammoth green.
Asparagus, large white.
Asparagus, large green.
Asparagus tips, mammoth white.
Asparagus tips, mammoth green.
Asparagus tips, large white.
Asparagus tips, large green.
Asparagus tips, medium white.
Asparagus tips, medium green.
Asparagus tips, small white.
Asparagus tips, small green.
Beans and pork, Libby's plain.
Beans and pork, Libby's with tomato sauce.
Kraut, Libby's, canned.
Pimentos, Libby's, Spanish.
Sweet potatoes, Libby's.
Tomato soup, Libby's, concentrated.
Vegetable soup, Libby's, concentrated.

MISCELLANEOUS VEGETABLE PRODUCTS.

Sauerkraut, Libby's, solid packed, in casks.
Sauerkraut, St. Louis.

As the number of items on their price lists indicates, these concerns had in 1916 and 1917 already well extended the range of vegetables handled. The rapidity with which the range in kinds of vegetables and brands is extended when once the packers enter a new line is indicated by a comparison of the items carried in Morris & Co.'s *Car Route Department Wholesale Weekly Price List* of September 17, 1917, and of June 9, 1919. Five items are given in the 1917 price list and 43 in the 1919 list.

FROM MORRIS & CO.'S 1917 PRICE LIST.

Supreme pork and beans.
Matchless early June peas.
Matchless Manchurian red beans.
Sugar corn, Iowa standard.
Tomatoes, Arkansas standard.

FROM MORRIS & CO.'S 1919 PRICE LIST.

Regina small green asparagus tips.
Armona medium green asparagus tips.
Pratt low medium green asparagus tips.
Supreme large white asparagus.
Supreme large white asparagus tips.
Matchless small white asparagus.
Surpassing kraut.
Supreme cut stringless beans.
Supreme cut golden wax beans.
Supreme whole golden string beans.
Lily cut beets.
Supreme small whole beets.
Supreme whole beets.
Supreme quartered beets.
Matchless whole beets.
Matchless sliced beets.
Supreme boiled cabbage.
Supreme red kidney beans.
Supreme pork and beans.
Supreme sugar corn.
Supreme Country Gentleman corn.
Matchless sugar corn.
Matchless sweet corn.
Farmer's favored hominy.
Home State kraut.
Supreme kraut.
Farmer's favored pumpkin.
Supreme pumpkin.
Supreme extra sifted tiny peas.

Canned and dried vegetables distributed, etc.—Continued.

FROM MORRIS & CO.'S 1919 PRICE LIST—Continued.

Supreme sifted early June peas.
Supreme extra sifted sweet peas.
Supreme sifted wrinkled peas.
Matchless sifted early June peas.
Matchless early June peas.
Matchless sifted sweet wrinkled peas.
Matchless sweet wrinkled peas.
Matchless sweet peas.
Supreme tomatoes.
Matchless tomatoes.
Supreme spinach.
Supreme mixed vegetables.
Del Monte spinach.
Choice hand-picked Michigan dried beans.

EXHIBIT XIX.

CANNED AND DRIED FRUITS, PRESERVES, JELLIES, SYRUPS, ETC., DISTRIBUTED BY CERTAIN OF THE FIVE GREAT PACKERS, SHOWING RANGE IN KINDS AND BRANDS.

FROM ARMOUR & CO.'S 1917 PRICE LIST.

CANNED FRUITS AND BERRIES.

Apples, in water.
Apricots, solid packed
Apricots, in water.
Apricots, unpeeled, Veribest brand.
Apricots, unpeeled, Helmet brand.
Apricots, peeled, Helmet brand.
Apricots, sliced, Veribest brand.
Apricots, sliced, Helmet brand.
Blackberries, in water.
Blackberries, Veribest brand.
Blackberries, Helmet brand.
Blueberries, in water.
Cherries, black, Helmet brand.
Cherries, red sour, in water.
Cherries, Royal Anne, Veribest brand.
Cherries, Royal Anne, Melrose brand.
Cherries, Royal Anne, Helmet brand.
Gooseberries, in water.
Loganberries, in water.
Loganberries, Veribest brand.
Loganberries, Melrose brand.
Loganberries, Helmet brand.
Peaches, yellow free, Veribest brand.
Peaches, yellow free, Helmet brand.
Peaches, yellow free, Melrose brand.
Peaches, yellow free, in water.
Peaches, yellow cling, Veribest brand.
Peaches, yellow cling, Helmet brand.
Peaches, yellow cling, Melrose brand.
Peaches, yellow cling, in water.
Peaches, sliced, yellow cling, Veribest brand.
Peaches, sliced yellow cling, Helmet brand.
Peaches, sliced yellow cling, Melrose brand.
Peaches, sliced yellow cling, in water.
Pears, Bartlett, Veribest brand.
Pears, Bartlett, Helmet brand.
Pears, Bartlett, Melrose brand.
Pears, Bartlett, in water.
Plums, egg, Helmet brand.
Plums, egg, Veribest brand.
Plums, green gage, Helmet brand.
Plums, green gage, Melrose brand.
Plums, green gage, Veribest brand.
Plums, purple, in water.
Prunes, in water.
Pineapple, sliced, sweet Hawaiian.
Pineapple, grated, sweet Hawaiian.
Pineapple, broken slices.
Pineapple, crushed or grated.
Pineapple, extra crushed.
Pineapple, standard crushed.
Raspberries, red, extra fancy.
Raspberries, red, in water.
Raspberries, Veribest brand.
Raspberries, Helmet brand.
Raspberries, Melrose brand.
Rhubarb, strawberry, in water.

Canned and dried fruits, preserves, etc., distributed, etc.—Continued.

FROM ARMOUR & CO.'S 1917 PRICE LIST—Continued.

FRUIT PRESERVES.

Blackberry preserves.
Cherry, red, sour, preserves.
Currant preserves.
Gooseberry preserves.
Pineapple preserves.
Raspberry preserves.
Strawberry preserves.

CRUSHED FRUIT.

Crushed apricots.
Crushed cherries (red).
Crushed cherries (special).
Crushed peaches.
Crushed peaches, sliced.
Crushed pineapples.
Crushed raspberries.
Crushed strawberries.

FRUIT JAMS.

Blackberry-apple jam.
Cherry-apple jam.
Orange-apple marmalade.
Peach-apple jam.
Raspberry-apple jam.
Strawberry-apple jam.

FRUIT JELLIES.

Apple jelly.
Grape-apple jelly.
Raspberry-apple jelly.
Strawberry-apple jelly.
"Pancake."

CONCENTRATED FRUIT SYRUPS.

Apricot syrup.
Banana syrup.
Cherry (red) syrup.
Cherry (wild) syrup.
Grape (Concord) syrup.
Limeade.
Lemon syrup.
Orange syrup.
Orange (blood) syrup.
Orangeade.
Peach syrup.
Pineapple syrup.
Raspberry (red) syrup.
Strawberry syrup.

MISCELLANEOUS FRUIT PRODUCTS.

Apple butter, Helmet brand.
Apple cider, Melrose brand.
Cherries, red, imitation Maraschino flavor.
Cherries, red, crushed, imitation Maraschino flavor.
Cherries, red, broken, imitation Maraschino flavor.
Cherries, white, imitation Maraschino flavor.
Cherries, imitation crème de menthe.
Grape compound.
Grape juice.
Olives, ripe, Veribest brand.
Olives, ripe, Helmet brand.
Olives, green, Veribest brand.
Olives, green, Helmet brand.
Whips, lemon, lime, maple, orange, peppermint, and vanal.

DRIED FRUITS.

Apples, choice evaporated.
Apples, fancy evaporated.
Apricots, choice evaporated.
Apricots, fancy evaporated.
Figs, choice white.
Figs, choice black.
Figs, fancy black.
Grapes, dried.
Peaches, choice evaporated.
Peaches, fancy evaporated.

Canned and dried fruits, preserves, etc., distributed, etc.—Continued

FROM ARMOUR & CO.'S 1917 PRICE LIST—Continued.

DRIED FRUITS—Continued.

Peaches, fancy Elberta.
Peaches, choice Muir.
Peaches, arrow Muir.
Peaches, fancy yellow.
Pears, choice evaporated.
Pears, fancy evaported.
Prunes, Italian.
Prunes, French.
Prunes, California.
Raisins, 3-crown London layers.
Raisins, 4-crown cluster layers.
Raisins, 6-crown imperial cluster layers.
Raisins, clusters.
Raisins, fancy sulphur bleached.
Raisins, loose muscatels, floated seedless.
Raisins, muscatels, 2-crown.
Raisins, muscatels, 3-crown.
Raisins, muscatels, 4-crown.
Raisins, seedless, bleached sultanas.
Raisins, seedless, unbleached sultanas.
Raisins, Thompson's seedless.
Raisins, choice seeded, bulk.
Raisins, fancy seeded.
Raisins, Sun Maid, freshly seeded.
Raisins, Sun Maid.

FROM 1917 PRICE LISTS OF WILSON & CO., INC.

CANNED FRUITS AND BERRIES.

Apples, no syrup, Certified brand.
Apples, no syrup, Advance brand.
Apple sauce, no syrup, Certified brand.
Apricots, Certified brand.
Apricots, peeled, Certified brand.
Apricots, sliced, Certified brand.
Apricots, Advance brand.
Apricots, Wilsco brand.
Blackberries, heavy syrups, Certified brand.
Blackberries, no syrup, Certified brand.
Blackberries, Wilsco brand.
Blackberries, Advance brand.
Blueberries, no sirup, Certified brand.
Cherries, black, Certified brand.
Cherries, black, Wilsco brand.
Cherries, black, Advance brand.
Cherries, Royal Anne, Certified brand.
Cherries, Royal Anne, Wilsco brand.
Cherries, Royal Anne, Advance brand.
Cherries, red pitted, heavy syrup Certified brand.
Cherries, red pitted, no syrup, Certified brand.
Cherries, red pitted, Wilsco brand.
Cherries, red pitted, Advance brand.
Cherries, red pitted, no syrup, Advance brand.
Gooseberries, heavy syrup, Certified brand.
Gooseberries, no syrup, Certified brand.
Gooseberries, Advance brand.
Grapes, white Muscat, Certified brand.
Grapes, white Muscat, Wilsco brand.
Grapes, white Muscat, Advance brand.
Loganberries, heavy syrup, Certified brand.
Loganberries, no syrup, Certified brand.
Peaches, yellow free, Certified brand.
Peaches, yellow cling, Certified brand.
Peaches, yellow cling, sliced, Certified brand.
Peaches, white cling, Certified brand.
Peaches, yellow free, Wilsco brand.
Peaches, yellow cling, Wilsco brand.
Peaches, yellow cling, sliced, Wilsco brand.
Peaches, yellow free, Advance brand.
Peaches, yellow cling, Advance brand.
Peaches, yellow cling, sliced, Advance brand.
Pears, Bartlett, Certified brand.
Pears, Bartlett, Eastern, Certified brand.
Pears, Bartlett, Wilsco brand.
Pears, Bartlett, Eastern, Wilsco brand.
Pears, Bartlett, Advance brand.
Pears, Bartlett, Eastern, Advance brand.

Canned and dried fruits, preserves, etc., distributed, etc.—Continued.

FROM 1917 PRICE LISTS OF WILSON & CO., INC.—Continued.

CANNED FRUITS AND BERRIES—Continued.

Pineapple, Hawaiian, sliced, Certified brand.
Pineapple, Hawaiian, grated, Certified brand.
Pineapple, Hawaiian, crushed, in own juice, Certified brand.
Pineapple, Hawaiian, sliced, Wilsco brand.
Pineapple, Hawaiian, grated, Wilsco brand.
Plums, egg, Certified brand.
Plums, gage, Certified brand.
Plums, egg, Wilsco brand.
Plums, gage, Wilsco brand.
Plums, Eastern, syrup, Wilsco brand.
Plums, egg, Advance brand.
Plums, gage, Advance brand.
Raspberries, black, heavy syrup, Certified brand.
Raspberries, black, no syrup, Certified brand.
Raspberries, black, Wilsco brand.
Raspberries, black, Advance brand.
Raspberries, black, no syrup, Advance brand.
Raspberries, red, Cuthberts, heavy syrup, Certified brand.
Raspberries, red, Cutbberts, no syrup, Certified brand.
Raspberries, red, Wilsco brand.
Raspberries, red, Advance brand.
Raspberries, red, no syrup, Advance brand.
Rhubarb, enamel lined tin, no syrup, Certified brand.
Rhubarb, enamel lined tin, no syrup, Wilsco brand.
Rhubarb, enamel lined tin, no syrup, Advance brand.
Strawberries, heavy syrup, Certified brand.
Strawberries, preserved, extra heavy syrup, Certified brand.
Strawberries, Wilsco brand.
Strawberries, Advance brand.

FRUIT PRESERVES.

[Varieties not given—Styles of containers and brands.]

Pride preserves, glasses.
Pride preserves, glass jar.
Pride preserves, weir jar.
Colonial preserves, glass.
Colonial preserves, glass jar.
Colonial preserves, pails.
Century preserves, glass jar.

FRUIT JAMS.

Pride jams, glass.
Seneca jams, glass.

FRUIT JELLIES.

Pride jellies, glass.
Pride jellies, glass jar.
Pride jellies, weir jar.
Pride jellies, pails.
Colonial jellies, glass.
Colonial jellies, glass jar.
Colonial jellies, weir jar.
Colonial jellies, pail.
Century jellies, glass jar.
Century jellies, pails.

MISCELLANEOUS FRUIT PRODUCTS.

Apple butter, Pride, glass.
Apple butter, Pride, tin.
Apple butter, Pride, weir jar.
Apple butter, Pride, pail.
Maraschino cherries, glass.

Canned and dried fruits, preserves, etc., distributed, etc.—Continued.

FROM SWIFT & CO.'S 1916 PRICE LIST.

CANNED FRUITS.

Apricots, Smilax extra.
Apricots, Hostess extra standard.
Apricots, Bee standard.
Apricots, Campus.
Apricots, Smilax.
Cherries, Royal Anne, Smilax extra.
Cherries, Royal Anne, Hostess extra standard.
Cherries, Royal Anne, Bee standard.
Grapes, Muscat, Smilax extra.
Grapes, Muscat, Hostess extra standard.
Peaches, lemon cling, Smilax extra.
Peaches, lemon cling, Hostess extra standard.
Peaches, lemon cling, Bee standard.
Peaches, lemon cling, Campus.
Peaches, lemon cling, Smilax.
Peaches, yellow free, Smilax extra.
Peaches, yellow free, Hostess extra standard.
Peaches, yellow free, Bee standard.
Peaches, yellow free, Campus.
Peaches, yellow free, Smilax.
Pears, Bartlett, Smilax extra.
Pears, Bartlett, Hostess extra standard.
Pears, Bartlett, Bee standard.
Pears, Bartlett, Bee.
Plums, egg, Smilax.
Plums, egg, Hostess extra standard.
Plums, egg, Bee standard.
Plums, green gage, Smilax extra.
Plums, green gage, Hostess extra standard.
Plums, green gage, Bee standard.
Pineapple, Libby's Hawaiian, grated, Smilax.
Pineapple, Libby's Hawaiian, sliced, Smilax.
Pineapple, Libby's Hawaiian, crushed in juice.
Pineapple, Libby's Hawaiian, sliced, Hostess.
Pineapple, Libby's Hawaiian, grated, Hostess.
Pineapple, Libby's Hawaiian, grated in syrup, Hostess.

LIBBY'S PRESERVED FRUITS.

Blackberry preserves.
Cherry, red, preserves.
Plum preserves.
Raspberry, red, preserves.
Strawberry preserves.

LIBBY'S FRUIT JAMS.

Apricot jam.
Blackberry jam.
Fig jam.
Grape jam.
Orange marmalade.
Pineapple jam.
Plum jam.
Raspberry jam.
Strawberry jam.

FRUIT JELLIES.

Apple jelly, Libby's.
Apple jelly, Maple brand.
Blackberry jelly, Maple brand.
Currant jelly, Maple brand.
Grape jelly, Maple brand.
Plum jelly, Maple brand.
Raspberry jelly, Maple brand.
Strawberry jelly, Maple brand.

MISCELLANEOUS FRUIT PRODUCTS.

Apple butter, Libby's, 3 sizes.
Olives, imported Spanish Queen, 10 sizes.
Olives, pimento-stuffed Manganilla, 7 sizes.
Olives, Libby's Extra Quality Queen, 3 qualities.

The rapid expansion of this phase of the packers' business and the enormous increase of the range of goods handled is well illustrated by growth in this field of Morris & Co. In the "Wholesale Weekly Price List" of Morris's car-route department for September 17, 1917, only one fruit product appears. This was "Sliced Hawaiian Pineapple, Troubadour brand." In the price list of the same department for June 9, 1919, however, there is almost as complete a list of canned and preserved fruits as a regular wholesale grocer would have. It contains the following:

CANNED FRUIT.

Apples, Supreme brand.
Apples, Climber.
Blackberries, Supreme brand.
Blackberries, Matchless brand.
Blueberries, Matchless brand.
Gooseberries, Matchless brand.
Peaches, sliced, Supreme brand.
Peaches, yellow free, Supreme brand.
Raspberries, black, Supreme brand.
Raspberries, black, Matchless brand.
Raspberries, red, Supreme brand.
Strawberries, Supreme brand.
Strawberries, Matchless brand.
Cherries, Royal Anne, Supreme brand.
Cherries, black, Supreme brand.
Loganberries, Supreme brand.
Pineapples, grated.
Cherries, red pitted, Supreme brand.
Cherries, red pitted, Matchless.
Gooseberries, Supreme.
Muscat grapes, Supreme.
Muscat grapes, Matchless.
Muscat grapes, Casa Loma.

JELLIES AND PRESERVES.

Fruit and apple jelly, assorted.
Imitation jelly, assorted.
Pure fruit preserves, assorted.
Pure preserves with apple base.
Imitation preserves, assorted.
Pure apple butter.
Pure peach butter.
Fruit and apple jelly, Matchless brand.
Fruit and apple preserves, Matchless brand.
Apricot jam.
Fig jam.
Peach jam.
Orange marmalade.
Pineapple jam.

DRIED FRUITS.

Apples.
Apricots.
Peaches.
Pears.
Prunes.

EXHIBIT XX.

CANNED AND CURED FISH DISTRIBUTED BY CERTAIN OF THE FIVE BIG PACKERS, SHOWING RANGE IN KINDS AND BRANDS.

FROM SWIFT & CO.'S CANNED GOODS AND FISH PRICE LIST, JUNE 21, 1919.

CANNED FISH.

Primer red Alaska salmon.
Smilax red Alaska salmon.
Smilax Chinook Alaska salmon.
Smilax King Alaska salmon.
Hostess medium red salmon.
Bee pink salmon.
Happyvale pink salmon.
Banjo chums.

Canned and cured fish distributed, etc.—Continued.

FROM SWIFT & CO.'S CANNED GOODS AND FISH PRICE LIST, JUNE 21, 1919—Continued.

CANNED FISH—Continued.

Sunset Chinook salmon.
Gen. white tuna fish.
Hawaiian striped tuna.
Albacore tuna, light and dark.
Yellow tail tuna.
Red lobster.
La Rose sardines, olive oil.
Napoleon sardines, p. and o. oil.
Napoleon sardines, c. s. oil.
Napoleon sardines, mustard.
California sardines, tomato.
California sardines, mustard.
California sardines, spiced.
Packet brand kippered herring.
Security fat herring.
Pride of Gulf shrimp.
Golden brand haddies.

SALT, SPICED, SMOKED AND DRIED FISH.

Fat breakfast mackerel.
Fancy shore mackerel.
Salt-water medium split herring.
Norway melt and roe herring.
Holland style herring.
Lake Superior herring.
Blood-red Alaska salmon.
Pink Alaska salmon.
Spiced anchovies.
Spiced herring, Hamburg style.
Spiced herring, Norway style.
Spiced roll mops.
Russian sardines (firefish).
Cut lunch herring (gaffelbitar).
Smoked pink Chinook salmon sides.
Kohinoor tag bloaters.
National fancy bloaters.
Security smoked bloaters.
Golden buck bloaters.
Boneless and skinless herring.
Victor brand codfish.
Talisman codfish.
Seaflower codfish cakes.
Harmony codfish bricks.
Talisman codfish middles.
Seaflower white shore middles.
Talisman threaded codfish.
Household codfish cakes.
Portland brand codfish.

FROM GROCERY DEPARTMENT PRICE LIST OF WILSON & CO., INC., JUNE 9, 1919.

CANNED FISH.

Certified fancy red sockeye salmon.
Wilsco fancy red Alaska salmon.
Rex med. red salmon.
Red E lunch salmon.
Soo Pere Yor pink salmon.
Advance Cohoe salmon.
Tall Advance Cohoe salmon.
Tall Tennis (pink) salmon.
Tall Aunt Jemima (chum) salmon.
La Belle wet shrimp.
Sea Maid wet shrimp.
Sea Maid dry shrimp.
Certified dry shrimp.
Cotton Bale dry shrimp.
Record tuna fish.
Willapa razor minced clams.
Izuma Japan crab meat.
Namco crab meat.
Certified lobster.
Standard sardines, oil.
Little Queen-wrapped sardines, oil.
Balboa sardines, oil.
Std. dec. tins, sardines, mustard.
Ambassador sardines, mustard.
Beaumerchand sardines, tomato sauce.
Ambassador sardines, tomato sauce.
Wakefield sardines, smoked.
Oval Wakefield kippered herring.
Wilsco oysters.

Canned and cured fish distributed, etc.—Continued.

FROM ARMOUR & CO.'S BRANCH-HOUSE PRICE LIST OF JUNE 16, 1919.

CANNED FISH.

Veribest flat salmon.
Veribest tall salmon.
Veribest flat Chinook salmon.
Veribest tall Chinook salmon.
A. & Co. flat red salmon.
A. & Co. tall red salmon.
Silver Hook tall red salmon.
Sterling flat medium salmon.
Sparton medium red salmon.
Sterling tall medium salmon.
Yo-Ho tall medium red salmon.
Patrol brand flat pink salmon.
Atlantis tall pink salmon.
Titan chum salmon.
Veribest tuna fish.
Veribest dry shrimp.
Veribest wet shrimp.
Nassau brand wet shrimp.
Barataria brand wet shrimp.
Eden brand sardines, oil.
La Moine sardines, oil.
Togo sardines, oil.
Penobscot sardines, oil.
Holmes sardines, oil.
Coat of arms sardines, oil.
Gouldsboro sardines, oil.
Red Seal sardines, oil.
Pilot Boat, Norwegian sardines, oil.
Clyde sardines, mustard.
Red Seal sardines, mustard.
Touraine sardines, mustard.
Blue Sea sardines, Portuguese style, olive oil.
Helmet sardines, olive oil.
Helmet California herring, tomato sauce.
Booth's California herring, tomato sauce.
Security herring, oil.
Security herring, mustard sauce.
Veribest lobster.
Biloxi brand cove oysters.
Helmet brand cove oysters.

FROM MORRIS & CO.'S CANNED-GOODS PRICE LIST, JUNE 9, 1919.

CANNED FISH.

Supreme red Alaska salmon.
Supreme sockeye salmon.
Matchless chum salmon.
Matchless pink salmon.
Ocean spray pink salmon.
Mercury red Alaska salmon.
Equity red Alaska salmon.
Trolling chum salmon.
American sardines.
Mustard sardines.
Ben Sen oval tomato sardines, saussed.
Ben Sen California mustard sardines.
Ben Sen tomato sardines.
California fruit kernel oil sardines.
Victory sardines.
Lubec sardines.
Gouldsboro sardines.
Cascoe sardines.
Biloxi light oysters.
Biloxi chief oysters.
Gibraltar oysters.
Epicure oysters.
Broadway dry shrimp.
Elk dry shrimp.
Pride of Gulf dry shrimp.
Surf dry shrimp.
Ready lunch wet shrimp.
Santa Claus wet shrimp.

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FOOD INVESTIGATION

REPORT

OF

THE FEDERAL TRADE COMMISSION

ON THE

MEAT-PACKING INDUSTRY

▼

PART V

Profits of the Packers

WASHINGTON
GOVERNMENT PRINTING OFFICE
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WASHINGTON
GOVERNMENT PRINTING OFFICE
1920

FEDERAL TRADE COMMISSION.

WILLIAM B. COLVER, *Chairman.*
JOHN FRANKLIN FORT.
VICTOR MURDOCK.
HUSTON THOMPSON.

J. P. YODER, *Secretary.*

LETTER OF TRANSMITTAL.

FEDERAL TRADE COMMISSION,
OFFICE OF THE CHAIRMAN,
Washington, 28 June, 1919.

SIR: I have the honor to submit herewith Part V of the Report of the Federal Trade Commission on the Meat Industry, being a part of the commission's food investigation undertaken at your direction.

Other parts of the food-investigation report will be presently transmitted.

By direction of the commission.

Yours, very truly,

WILLIAM B. COLVER,
Chairman.

THE PRESIDENT,
White House.

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REPORT OF THE FEDERAL TRADE COMMISSION ON THE MEAT-PACKING INDUSTRY.

PART V—PROFITS OF THE PACKERS.

CHAPTER I—SUMMARY.

Section 1. The scope of the inquiry into packers' profits.

In the investigation of the meat-packing industry, the Federal Trade Commission made a general inquiry into the costs, investment, and profits of the packers. At the request of the United States Food Administration the effectiveness of the limitations imposed by the said administration on packers' profits was also studied.

The more important results of these inquiries are set forth in the following pages and include:

1. An outline of the financial development of Armour & Co., Swift & Co., Wilson & Co., Inc., Morris & Co., and the Cudahy Packing Co., hereinafter referred to as the five great packers, so far as records were available, from their earliest beginnings to the close of the fiscal year 1918, as shown by annual earnings, dividends, capital stock, and surplus.

2. A comparison of the earnings of the five great packers in dollars and in rate on investment for the three pre-war years 1912 to 1914, and the three war years 1915 to 1917, before the Food Administration control was put in effect.

3. A study of the accounting system of the great packers supplemented by an examination of the statistical methods employed in arriving at costs and profits per head and per pound of animals produced.

4. A survey of the possibilities of introducing uniform accounting principles into the packing industry.

5. A compilation of the profits of 65 independent packers as reported to the Commission for the fiscal years 1914, 1915, and 1916; and of 117 independent packers as reported through the Commission

to the United States Food Administration under its profit regulation for the fiscal year 1918. A comparison is also made between the profits of these independent packers and the five great packers.

These five subjects are treated in Chapters II, III, and IV of this report. The facts presented and the conclusions reached are summarized briefly in the following sections:

Section 2. The financial development of the five great packers.

In the financial growth of the five great packers during the past generation and more, a fact which stands out with especial prominence is that the several companies have grown primarily out of profits retained in the business which generally have been held in the surplus account until such time as it was thought expedient to capitalize them through stock dividends or their equivalent. Capital stock has not been increased by sale for cash to any such extent as it has been by capitalizing accumulated surplus. The stock of the several companies is closely held by certain family groups, and with the exception of Wilson & Co. Inc., no capital stock has ever been issued against "good will."

It is possible to present figures for Armour & Co. and the Cudahy Packing Co. since their original organization in 1868 and 1887, respectively; for Swift & Co. annual earnings are available since 1896, but prior thereto only partial figures since its original incorporation in 1885; for Wilson & Co. Inc. figures since the legal incorporation of the company (originally as Schwarzschild and Sulzberger Co.) in 1893; for Morris & Co. figures only for the past 10 years—1909 to 1918, inclusive.

During these known periods of development the reported net profits of the five companies aggregated $504,298,000, while dividends aggregating $163,013,000 have been withdrawn, leaving $341,285,000 to be invested in the business or to pay income and excess profits taxes in 1917 and 1918. During these known periods $126,638,000 of new cash capital was subscribed, or only a little over a third of the increase in capital due to invested profits. During these same years it appears that the several companies have converted at least $182,777,000 of surplus into capital stock through the issuing of stock dividends, or their equivalent.

Also Swift & Co., in the first 10 years of its incorporated history, 1885–1895, declared sundry extra cash dividends which furnished stockholders with over 40 per cent of the cash necessary to subscribe to new issues of capital stock at par, the stock being issued in each case within a few days of the declaration of the extra dividend.

Armour & Co. commenced business as a partnership in 1868 with an investment of $160,000. In the 50 years through 1918 the com-

pany reports earnings of $179,270,000, dividends (or drawings) of $29,866,000, the balance (with the exception of income and excess profits taxes paid the Government in 1917 and 1918) being retained in the business. Beside the original investment of $160,000, the only contributions to the capital of the company on the part of the stockholders have been $10,125,000 allowed for the Kansas City packing plant added to the main company in 1900, and $3,725,000 preferred stock sold for cash in 1918, or a total cash investment not to exceed $14,000,000. On November 2, 1918, the stockholders' equity in the company as shown by the balance sheet totaled $173,092,000, of which $103,725,000 was in the form of capital stock and $69,367,000 in the surplus account. Of the total capital stock $20,000,000 was issued by capitalizing the partnership surplus in 1900, $80,000,000 was issued as a stock dividend declared in 1916, and $3,725,000 was issued for cash in 1918. Armour & Co. thus presents one of the most remarkable instances of financial development in American industrial history. About 8 per cent of the present net worth of the company has come from cash or property contributions on the part of the stockholders.

Swift & Co. in the 23 years since 1896 reports earnings of $214,249,000, cash dividends of $84,157,000, with an extra dividend of $25,000,000 declared in 1917, with which stockholders purchased a new issue of $25,000,000 common stock, thus effecting a practical stock dividend. During the same period $86,233,000 of new stock was sold for cash (not including the $25,000,000 in 1917 just referred to). Thus Swift & Co. has also grown chiefly from profits retained in the business.

The financial histories of the other three great packers, Morris & Co., Wilson & Co., Inc., and the Cudahy Packing Co., follow the general outlines already exhibited for Armour and Swift, namely, they have grown primarily from invested earnings, and, in the case of Cudahy and Wilson, have capitalized these earnings to a large extent through the medium of stock dividends. The case of Morris & Co. is somewhat different. Incorporated in 1903 (though founded in 1859) with a capital stock issue of $3,000,000, the surplus of the company, created mainly out of profits, stood at $52,822,000 on November 2, 1918, capital stock not having been increased by either cash subscriptions or stock dividends, but still remaining at $3,000,000. In view of these differences in policy of capitalizing surplus a comparison of the rates of dividend paid for these three companies would have little value.

The five great packers have, for the past generation, obtained a margin of profit between what they have paid for live stock and other raw materials on the one hand, and what they have received for their products on the other, which has permitted the several

companies to pay not only large amounts in dividends compared with their original investment, but also to grow to their present enormous dimensions primarily from earnings retained in the business.

Section 3. War Earnings and pre-war earnings of the great packers.

The net profits of the five great packers for the years 1912 to 1917, inclusive, have been found, after adjustment, to be as follows:

1912	$18,035,000
1913	18,581,000
1914	22,894,000
1915	37,385,000
1916	59,236,000
1917	95,639,000
Total 6 years	251,770,000
Net profits in three prewar years—1912, 1913, 1914	59,510,000
Net profits in three war years—1915, 1916, 1917	192,260,000
Increase, war years	132,750,000

Per cent of increase, 223.

Thus the net profit for the three war years was over three times as great as for the three years preceding.

These figures are not as reported by the several companies, but result from certain adjustments by the Commission, whereby income and excess profits taxes, sundry surplus items, and certain other unwarranted charges have been eliminated. That a more intensive analysis would reveal the necessity of making further adjustments, is more than probable, and these figures are accordingly in the nature of minima. They show, however, the effect of the war on the profits of the great packers, net earnings being at least $132,000,000 more in the three war years than they were in the three prewar years, an excess of 223 per cent. "Net profit" as used above is arrived at after deducting interest paid as an expense. If investment be defined as net worth (capital stock and surplus) the following percentages have been earned for the five companies combined:

	Per cent.
1912	8.1
1913	7.0
1914	8.3
1915	12.8
1916	18.5
1917	26.5
Average for six years	14.5
Average three prewar years, 1912, 1913, 1914	7.8
Average three war years, 1915, 1916, 1917	19.4

Thus the average rate of profit on investment has increased sharply in the war years, rising from 8.3 per cent in 1914 to 26.5 per cent in 1917, and corresponds with the great increase already noted in actual dollars. The analysis of these figures in respect of individual companies will be found in Chapter II, and while some variations from the group figures will be noted, generally speaking all of the five great companies enjoyed very large increases in net profits, both in dollars and in rate on investment, especially during 1916 and 1917. It is also significant that profits have increased very much more rapidly than sales, over this period, despite the increased volume of and enhanced price for the latter.

Only a fraction of these great war earnings have been disbursed in the form of dividends, and as a result the financial strength of the companies has enormously increased since 1914. In that year the total net worth (capital stock and surplus) stood on the books at $293,000,000 while at the close of 1917 the aggregate net worth was no less than $418,000,000. Almost the entire increase is accounted for by reinvested earnings.

Section 4. The accounting systems of the great packers and the costs and profits of meat.

In respect to the profits of the five great companies, one outstanding conclusion which the Commission has reached is the inaccuracy of costs and profits hitherto recorded and reported by the several companies, due to the failure to follow certain well-recognized and fundamental principles of accounting. It was not found possible at present to ascertain accurately either the total profits of the great companies or the profits per head or per pound for the principal meat products, owing to the deficiencies in the bookkeeping methods hitherto employed. That a part of this uncertainty is due to the inherent nature of the business is doubtless true; that a part is due to a disregard of the recognized requirements of accounting is also true. These two factors have made it difficult for the Government or for the packers themselves to ascertain in a given year, with even reasonable accuracy, cost and earnings for many specific products, or even for the business as a whole.

Total profits have been found to be inaccurate in that the bulk of the inventories are invariably priced on a market basis, when accounting principles require a cost basis; in that the profits of subsidiary companies are not uniformly taken up in the accounts of the controlling company; in that surplus adjustments are often charged directly to the profit and loss account of a given year instead of to surplus account direct; in that depreciation has not been systematically accumulated; in that unjustified "reserves" have been charged

against earnings from time to time, particularly during the profitable war years.

Profits on specific meat products or in specific departments (such as the profit per pound of beef) are not accurate in that no sound cost system has been developed for the packing industry, and the present method of transferring products from one processing state to the next, based as it is on market valuations instead of on actual costs, precludes reliance upon such unit or departmental profits.

The inaccuracy of the present methods of figuring unit costs and profits casts doubt on all the public statements and advertisements of the great packers dealing with profits per pound of beef and of meat products generally.

In this connection it may be said that the great packers, in emphasizing through the medium of public advertisements their profits per head or per pound of meat, tend seriously to confuse the real issue of profit taking. That their profits per pound, could they be computed with complete accuracy, would not exceed a very few cents, if averaged over long periods of time, is readily apparent when total earnings and total pounds sold are comparatively studied. In 1918 the five great companies slaughtered some 14 billion pounds of live animals and sold over 10 billion pounds of meat and other animal products. They reported profits of some $84,000,000 for the year,[1] covering not only live-stock but nonlive-stock activities as well, and even if this figure were raised by intensive analysis to $100,000,000 this total applied to animal products alone would not exceed a cent per pound for all such products. If a sound cost system were in existence, whereby the profit could be allocated to the several meat products, it might well appear that certain products, such as cured pork, averaged considerably more than a cent per pound, while other products, such as fertilizer, averaged considerably less; but in any event, packer profits per pound of meat can not exceed a very few cents, and sometimes are undoubtedly less than a cent.

In their advertisements the packers make use of the words "cent," "fraction of a cent," "only a few cents," per pound or per dollar of sales, in the knowledge that the public regards a "cent" as a very small element of value. The packers seek to capitalize this habitual attitude of mind on the part of the public and insist that their profits are, accordingly, negligible. This practice obscures the real facts as to profits. As a matter of fact a profit of a cent per unit far from being a small profit, may be an exorbitant profit measured in terms of return upon capital invested. The only sound method whereby the reasonableness of a profit of a cent per pound

[1] Including a period of 13 months for Swift & Co.

may be determined is by aggregating such a profit and comparing it with the capital invested in the enterprise. If the resulting rate of profit on capital invested is moderate, a profit of a cent per pound is ipso facto moderate; if the resulting rate is unduly high or unduly low, judgment as to rate per unit must vary accordingly. The packers, by attempting to concentrate public attention upon the rate per unit of output, seek to escape all criticism for what may be in fact indefensible profit taking.

In 1918 the total net worth of the great packers (capital stock and surplus combined) was reported as being in the neighborhood of half a billion dollars. A profit of 1 cent per pound on the 10 billion pounds of live stock products sold during the year gives an aggregate return of $100,000,000. Even were this doubled, the resulting rate—namely, 2 cents per pound—would still tend to be a "negligible" amount in the public mind. Yet this difference of 1 cent would mean, for the five great companies, $100,000,000 in possible dividends, or about 20 per cent on the capital stock and surplus combined ($500,000,000).

Thus while the packers' profits per pound may appear to the public to be small, they are in reality large, due to the enormous tonnage produced on the basis of a relatively moderate investment.

The same objection can be raised against the packers' practice of advertising as small, and therefore reasonable, their profit per dollar of sales. In 1918 according to their reports to the United States Food Administration, this rate averaged for the five great companies, 2.2 cents for each dollar of sales. This is the equivalent of 15 per cent on capital stock and surplus—a high return on investment. If the profit for the year were doubled, the rate per dollar of sales might still appear to the public to be small—4.4 per cent—and might be advertised as such though the rate on investment would be 30 per cent, a manifestly exorbitant return.

It is interesting to note that 117 independent packers (see Chap. IV) in 1918 earned on the average precisely the same rate per dollar (2.2 cents) as that reported by the great packers, while the rate of return on net worth for the independent companies averaged the high figure of 18.1 per cent. Thus it is clear that the packing business, as such, does a large volume on a small investment, and that the resulting rate of profit per dollar or per pound may seem small.

Section 5. A uniform accounting system for the great packers.

At the instance of the President's meat committee and of the United States Food Administration, the Commission made a survey

of the possibility of introducing a uniform accounting procedure for the great packers. It was found that in order to ascertain accurate costs and profits, not only on specific products, but on the business as a whole, sweeping revisions in the accounting methods now followed by the several companies would have to be adopted.

Accuracy of departmental or specific product costs turns upon the introduction of a sound cost system whereby the exact cost of the live animal can be allocated to the several departments handling different products derived from that animal, thus charging each product with a share of the original cost, instead of charging the original cost as at present to the carcass meat department, and crediting by-products thrown off from the animal, on the basis of ill defined "market values." If transfers between departments, and the pricing of inventories can be reduced to a cost basis, the problem of accurate profit finding is largely solved.

In addition there should be adopted a uniform classification of accounts for assets, liabilities, income, and expense; a uniform definition of packing plant departments and "sections;" uniform methods for distributing overhead expense, and charging depreciation; uniform fiscal periods; and a uniform system of billing packing plant products for ultimate sale at the branch house or car route distributing points, thus bringing about as clear a distinction as may be between the manufacturing and selling functions.

All of these matters are at present in a hopelessly confused condition with respect to the several companies, and the desirability of bringing about a sound cost system, uniformity of accounting methods, and consequently dependable and comparable figures whether for the public and the Government, or for the packers themselves, needs no argument.

Section 6. The profits of the independent packers and the profits of the five great packers.

The earnings of 117 independent packers for the fiscal year 1918 have been analyzed from a variety of angles, including the effect of size on profitableness, the effect of character of business (whether beef, pork, or mixed), and the effect of Government allotments for meat products. The several companies have also been grouped in accordance with their rate of return on net worth (capital and surplus). It appears that these 117 packers as a class earned 18.1 per cent on net worth for the year 1918, a manifestly high return. Eighteen beef packers averaged 18.4 per cent, 70 pork packers 18.1 per cent, and 29 "mixed" packers 17.8 per cent.

Arranging all companies by size measured in sales it appears that 6 independent packers doing a business of over 25 millions each, earned on the average 19.3 per cent on net worth; that 11 packers doing a business between 10 and 25 millions averaged 23.6 per cent

on net worth, while 100 smaller independents, doing a business of less than 10 millions each, averaged 14.1 per cent. It is evident that the larger independents were the more profitable companies.

Figures are also presented for 65 independent packers in the years 1914, 1915, and 1916. In the first year these companies averaged 12.6 per cent on net worth, in the second 13.1 per cent, in the third 22.1 per cent. It was not found practical to group the companies by sizes, or by character of business. The effect of the war is very apparent in the large increase in the 1916 rate.

Turning now to a comparison of the profits of the independent packers with those of the five great packers, the following rates on net worth are to be noted:

Year.	Independent packers.	Five great packers.
	Per cent.	*Per cent.*
1914	[1] 12.6	8.3
1915	[1] 13.1	12.8
1916	[1] 22.1	18.5
1918	[2] 18.1	[3] 15.0

[1] Sixty-five independent packers.
[2] One hundred and seventeen independent packers. Per reports to U. S. Food Administration.
[3] Per reports to United States Food Administration.

Thus in every year the independent packers tabulated averaged a higher rate of return than the great packers. No conclusion can be drawn from these figures, however, until certain qualifications are presented. Initially the independent packers shown are a selected group comprising only those companies whose accounts were so clearly kept that reliable tabulations could be made from them. Practically all the large independents are included, but scores of small companies have been excluded.

In the second place it should be remembered that it is the larger independents who show a rate of earnings greater than that exhibited by the Big Five, and that most of the smaller independents tabulated showed lower rates of profit, the figures of the large companies exerting a preponderating influence on the group rate.

In the third place, the activities of the great packers and of the independent packers are not entirely comparable. The former operate branch houses, car routes, and have invaded many fields not concerned with the production of live-stock products, while the latter are almost exclusively meat packers selling locally or through brokers. If it were possible to segregate the live-stock business of the great packer from his other activities, more accurate comparisons with the independents might be made, but failing such segregation, deductions therefrom are not conclusive.

If it can be assumed that the great packers make as much on the meat end of their business as do the larger independents, it would follow that they must make considerably less on the nonlive-stock end, in order to get a lower average rate on the whole business. There is some reason to believe that the great packers are under a frequent burden of low profits and perhaps even losses by reason of their invasion of new fields. In other words high profits on meat may be used to finance new activities pending the establishment of the latter on a firm basis, meanwhile keeping down the average return on the total business to a level less than that shown for the larger independents.

On the other hand, if the great packers are actually earning less on their meat business than the larger independent companies, it would seem that their asserted operating efficiency and hence the practical business advantage of such great industrial conglomerations may be seriously questioned.

CHAPTER II.

THE PROFITS OF THE FIVE GREAT PACKERS.

Section 1. Introductory.

In this chapter a general inquiry is made into the total profits of the five chief packing companies—Armour & Co., Swift & Co., Morris & Co., Wilson & Co., Inc., and the Cudahy Packing Co. The distinction between a complete audit and an inquiry is a wide one. The Commission has not made a complete audit of the books of these companies. The accounting records of the great packers covering scores of packing plants, hundreds of branch houses and multifarious related activities, could not be examined individually, year by year. A complete audit, as undertaken by the professional accountant, includes a thorough examination of all books, accounts, vouchers, and records, and the verification of results as accumulated by the bookkeeping system, while the work of the Commission involved an examination and comparison of final results only, with such tests of the bookkeeping machinery and such scrutiny of individual accounts as special circumstances required. The figures and facts hereafter presented are largely drawn from the packers' own summaries and statements, with occasional adjustments made by the Commission as a result of certain special analyses. A study has been made of the accounting methods (see Ch. III), and final profit and loss accounts have been analyzed, as well as various underlying accounts, covering the years 1912 to 1918. The revisions resulting from these various studies are presented as more accurate than the packers' statements, but in no event can they be taken as the result of an audit.

Section 2. Financial history—General comment.

The following tables, with accompanying text, show, so far as data have been available, the growth and development of the great companies measured in terms of reported earnings, dividends, capitalization, surplus, and rates of profit on net worth (or stockholders' equity). While these tables are drawn directly from the packers' records with no adjustments of any kind (except for the addition of Federal income and excess profit taxes to profits in 1917 and 1918),

and while it is known that profits in certain years are not accurately reported by the packers, nevertheless, it is believed that these figures give a broad general view of historical development and present the essential features of the story. The Commission has secured figures for the whole period of development for Armour & Co. (1868–1918) and for the Cudahy Packing Co. (1887–1918). For Swift & Co., founded in 1885, only dividend and capitalization figures for the first 10 years through 1895 have been secured; earnings and surplus figures were available only from 1896 to 1918. For Wilson & Co., Inc., figures beginning with 1894 have been secured, at the time of legal incorporation (then known as Schwarzschild & Sulzberger Co.), although it appears that the business was founded as a partnership in the year 1853. For Morris & Co. figures could only be secured for the last 10 years, beginning with 1909; prior to that time, according to statements of officers, no balance sheets were prepared, though the company itself was founded in 1859 and incorporated in 1903. Thus, unfortunately, tables of financial history are not complete for all companies, but even so, they present an interesting picture of development and growth.

One outstanding feature of these exhibits is the fact that the several companies have reached their present great proportions largely by reason of earnings put back into the business, rather than from new stock subscriptions sold for cash. To a large extent they have grown from profits over and above reasonable dividend requirements, added annually to the surplus account. From these accumulated profits, stock dividends have been repeatedly declared (except apparently in the case of Morris & Co.).

The following summary table recapitulates the growth in net worth (capital stock and surplus) for the five companies combined covering the years under review. It is to be understood that the period varies for each company, so the table does not represent a specific number of years and is only a summary of the available facts.

TABLE I.—*Summary of historical development, five great packers, on the basis of available facts.*

Net worth, beginning of known periods		$42,838,000
Reported net profits over known periods		504,298,000
New cash capital		126,638,000
Surplus increased by appraisals		68,186,000
Total		741,960,000
Less dividends and drawings	$163,013,000	
Sundry surplus adjustments (net)	44,070,000	
Total deductions		207,083,000
Net worth, close of 1918		534,877,000

Of the $504,298,000 earnings, $163,013,000 was paid out in dividends and drawings, leaving $341,285,000 of the earnings in the business, or nearly three times as much as came in from new cash capital ($126,638,000). Thus the great packers as a class have grown mainly from invested profits rather than from financing involving new cash contributions.

In respect to the $68,186,000 increase in surplus due to "Appraisals of properties" it is known that a part at least of this total is due to excessive depreciation charges and the failure to capitalize new construction in former years, which was later taken up on the books. In so far as this is true, profits as here shown are correspondingly understated. It is further known that a part of this increase in surplus due to appraisals can be accounted for by a desire to value fixed assets on the basis of reproduction cost. The data on hand did not allow the Commission to determine the share of the total increase attributable to each of these two factors.

In respect to the item of $44,070,000 deducted for "sundry surplus adjustments," it will be found that most of this amount is accounted for by income tax reserves on the part of all of the packers deducted in 1917 and 1918. There are also a number of other small adjustments both debit and credit included in this item.

It is interesting to note that the great packers have not generally issued stock for good will. A significant exception is the item of $12,000,000 for good will added to the assets of Wilson & Co., Inc. (then Sulzberger & Sons Co.) in 1910, common stock being issued therefor. (See p. 30.) The surplus of this company had reached proportions in 1918, however, where this item might have been charged off and still leave a large credit balance in the surplus account. The probable reason for the general avoidance by the great packers of this practice lies in the fact that the companies were closely held by family groups, and there was no incentive to, nor any particular gain to be made by capitalizing good will.

During the years under consideration, the following total issues of stock dividends, or their equivalent, declared out of accumulated surpluses, were made:

Armour & Co., 1868–1918	$100,000,000
Swift & Co., 1885–1918	50,000,000
Morris & Co., 1909–1918	None.
Wilson & Co., Inc., 1894–1918	20,000,000
Cudahy Packing Co., 1887–1918	12,777,000
Total	182,777,000

The 20 millions shown for Wilson & Co., Inc., was not technically a stock dividend, as the company was reorganized at the time, but

practically it amounted to the same thing. It must be remembered, however, that over 12 millions of this stock had nothing behind it except good will. Similarly, Armour & Co., when it was incorporated in 1900, issued its first 20 millions of stock out of partnership surplus, which, though technically not a stock dividend, is practically identical. Swift & Co., in addition to a 25 million stock dividend in 1918, declared in 1917 an extra cash dividend of 25 millions, increasing its capital stock by a like amount, and giving stockholders the right to subscribe therefor. Thus, the stockholders in effect were presented with the money with which to purchase new stock, and a practical stock dividend was effected. Similarly, in the first 10 years of Swift's history (1885–1895) extra cash dividends were declared just prior to new stock issues, and stock dividends were substantially effected, though no allowance has been made therefor in the above table.

Care must be exercised in using the last column of the following tables of financial history entitled "rate of profit on net worth." It purports to show the return on total stockholders' investment, and thus is a sounder figure than rates computed on capital stock or on sales. But two facts must be pointed out in connection therewith. First, appraisals of property were made by these companies which, by adding large values to surplus account, seriously affect comparability of rate, not only as between different companies, but also as between the years preceding, and the years succeeding, such appraisal in the single company itself. Second, when, in addition to reasonable dividends, large additions are made to surplus out of profits, such additions to surplus as well as the dividends actually paid are to be kept in mind in considering fair subsequent returns, because such increases tend to depress the rate of return on net worth.

Profits as shown on the following tables of financial history for the years 1912–1917 are not always identical with "adjusted profits" as shown for the same years in the latter part of this chapter. The financial history tables have followed as nearly as may be the packers' own published reports. The "war profits" tables exhibited later have been adjusted to some extent after an analysis of the profit and loss accounts for the years in question. In the following discussion of the financial growth of these companies there is no reference made to their bond issues which, however, are shown in detail in Exhibit I.

Section 3. Financial history of Armour & Co.

TABLE 2.—*Financial history of Armour & Co., 1868–1918.*

[Per company figures unaudited by Commission.]

Fiscal year.	Reported net profit.	Drawings or dividends.	Beginning of fiscal year.			Rate of profit on net worth.
			Capital stock, common.	Surplus.	Net worth.	
						Per cent.
Original investment					$160,000	
1869	$120,000	$80,000			160,000	75.0
1870	49,000	9,000			200,000	24.5
1871	18,000	18,000			240,000	7.5
1872	69,000	51,000			240,000	28.8
1873	199,000	49,000			258,000	77.1
1874	126,000	34,000			408,000	30.9
1875	300,000	50,000			500,000	60.0
1876	500,000	50,000			750,000	66.7
1877	450,000	150,000			1,200,000	37.5
1878	524,000	24,000			1,500,000	34.9
1879	705,000	205,000			2,000,000	35.3
1880 (15 months)	2,000,000	250,000			2,500,000	64.0
1881	1,850,000	600,000			4,250,000	43.5
1882	1,705,000	705,000			5,500,000	31.0
1883	510,000	260,000			6,500,000	7.8
1884	1,618,000	868,000			6,750,000	24.0
1885	1,100,000	600,000			7,500,000	14.7
1886	1,050,000	800,000			8,000,000	13.1
1887	1,000,000	250,000			8,250,000	12.1
1888	1,700,000	700,000			9,000,000	18.9
1889	1,550,000	1,050,000			10,000,000	15.5
1890	1,550,000	1,050,000			10,500,000	14.8
1891	1,100,000	850,000			11,000,000	10.0
1892	1,886,000	1,136,000			11,250,000	16.8
1893	2,000,000	1,000,000			12,000,000	16.7
1894	729,000	479,000			13,000,000	5.6
1895	1,400,000	650,000			13,250,000	10.6
1896	2,070,000	70,000			14,000,000	14.8
1900 (3½ years to Apr. 24)	[1] 8,105,000	791,000			16,000,000	
1900 (6 months to Oct. 27)	725,000		[2] $20,000,000	[2] $13,439,000	33,439,000	
1901	5,736,000	1,000,000	20,000,000	14,164,000	34,164,000	16.8
1902	2,500,000		20,000,000	18,900,000	38,900,000	6.4
1903	2,250,000		20,000,000	21,400,000	41,400,000	5.4
1904	1,850,000		20,000,000	23,650,000	43,650,000	4.2
1905	2,800,000		20,000,000	25,500,000	45,500,000	6.2
1906	3,000,000		20,000,000	28,300,000	48,300,000	6.2
1907	3,100,000		20,000,000	31,300,000	51,300,000	6.0
1908	7,800,000		20,000,000	34,400,000	54,400,000	14.3
1909	7,500,000		20,000,000	42,200,000	62,200,000	12.1
1910	6,500,000	2,000,000	20,000,000	49,700,000	69,700,000	9.3
1911	2,510,000		20,000,000	54,200,000	74,200,000	3.4
1912	5,702,000	2,000,000	20,000,000	56,710,000	76,710,000	7.4
1913	6,028,000	2,000,000	20,000,000	[3] 80,195,000	100,195,000	6.0
1914	7,510,000	2,000,000	20,000,000	84,223,000	104,223,000	7.2
1915	11,000,000	2,000,000	20,000,000	89,733,000	109,733,000	10.0
1916	20,100,000	2,000,000	20,000,000	98,733,000	118,733,000	16.9
1917	[4] 26,929,000	2,000,000	[5] 100,000,000	[5] 36,833,000	136,833,000	19.7
1918	[4] 19,747,000	2,037,000	100,000,000	56,127,000	156,127,000	12.6
1919			[6] 103,725,000	69,367,000	173,092,000	
Total, 50 years	179,270,000	29,866,000				

[1] Individual years not available.
[2] Company incorporated $20,000,000 common stock issued against surplus, no new cash. Kansas City plant valued at $10,125,000 added to surplus.
[3] Property appraised, and $19,783,000 added to value of fixed assets, and credited to surplus.
[4] Profits before deducting Federal income and excess profit taxes (as estimated).
[5] Capital stock increased by an $80,000,000 stock dividend. Surplus decreased by like amount.
[6] Capital stock increased by cash sale of $3,725,000 preferred stock.

With an investment of $160,000 at the beginning of the fiscal year 1869, Armour & Co., a partnership, commenced business. It is not clear that this $160,000 was in cash, for it may well have been in part due to the earlier trading of P. D. Armour, the founder of

the house. The first year of the partnership yielded a profit of $120,000, or 75 per cent upon the original investment, and for the next 15 years, until 1884, a very high rate of earnings on partnership investment (net worth) was maintained in nearly all years. The year 1885 seems to mark the end of the period of such profit rates, for in no year thereafter did profits exceed 20 per cent on net worth. After 1885 the development, while continuous, and often reflecting large earnings, was, in terms of rate on net worth, steadier, without the peaks and great fluctuations of the earlier period. Meanwhile, profits in dollars (not in rate) generally increased, and as the partnership drawings were invariably less—usually considerably less—than the annual earnings, the net worth, or partnership investment, rapidly accumulated, passing the ten million mark in 1889 without a dollar of additional capital being subscribed. The increment came entirely from undistributed profits. Unfortunately, details for the years 1897, 1898, 1899, and 1900 are not available, particularly so in that the Spanish War occurred during this period. All that the company records show is a total profit of $8,105,000 for three and a half years, or an average of about $2,300,000 per year, the most profitable period (in dollars) to that date. Both 1901 and 1908 were unusually profitable years, while 1911 shows a remarkable decrease in earnings. Beginning with 1916, the upward sweep of profits both absolutely and measured in terms of rate on net worth has been extraordinary.

In the years 1917 and 1918 Armour & Co. has not reported the very large profits known to have been made in its South American business. This business was divorced from the controlling American company, and organized as a separate corporation, but the same direction continues, and in order to secure real comparability of profits, these earnings should be added to the profits reported above. It being impossible to secure exact figures for South America, the profits as reported on the historical table, understate the true earnings of the Armour interests for 1917 and 1918. According to a statement made by J. O. Armour before the Senate Committee on Agriculture and Forestry in January, 1919,[1] a part of the present South American investment is included in the assets of Armour & Co., as shown above, although the profits in 1917 and 1918 are not included in the income.

The grand total of profits as reported for the 50 years through 1918, is at least $179,270,000, of which $29,866,000 has been paid out in drawings and dividends, the balance being retained in the business, except for Federal income and excess profit taxes deducted in 1917

[1] See hearings S. 5305, Part 1, p. 604.

and 1918. While 29 millions out of 179 millions may appear as a moderate amount to withdraw, nevertheless, when compared with the original $160,000 invested, with no new additions of cash capital subscribed (except for $3,750,000 of preferred stock issued in 1918, and the Kansas City property valued at $10,125,000 added in 1900) it is seen that the Armour family and the early partners, the sole recipients of this $29,866,000, received large dividends compared with their original investment.

In 1900, the partnership was incorporated under the laws of Illinois, the net worth having accumulated to $23,314,000 at that time. The Kansas City packing plant and property heretofore conducted as a separate business (but operated by the Armour interests) was then merged with the main company, a value of $10,125,000 being added to the assets and to surplus therefor, bringing the total net worth up to $33,439,000. Against this surplus, $20,000,000 of common stock was issued to members of the Armour family, leaving $13,439,000 in the surplus account at the time of incorporation. No new cash was subscribed. The capital stock remained at 20 millions until the beginning of the fiscal year 1917, when, with the surplus standing at $116,833,000, an $80,000,000 stock dividend was declared out of surplus, raising the capital stock outstanding to 100 millions and leaving $36,833,000 still in the surplus account. In 1918, 60 millions of bonds were issued with a clause providing that they could be converted into nonvoting preferred stock. At the beginning of the fiscal year 1919, $3,725,000 had been so converted and the total stock capitalization stood at $103,725,000 on that date (Nov. 2, 1918). The surplus, meanwhile, had rapidly increased, in spite of the 80-million stock dividend, and by the beginning of the fiscal year 1919 amounted to $69,367,000, giving a total net worth on that date of $173,092,000.

Thus, the financial history of Armour & Co. presents one of the most striking examples of American industrial development. Starting 50 years ago with a capital of $160,000, the business has earned $179,270,000 to 1919, of which $29,866,000 has been paid out to partners and stockholders, the balance being invested in the business and constituting the preponderating proportion of the $173,092,000 of stockholders' equity remaining on November 2, 1918. The actual contributions of the stockholders were limited to the original investment of $160,000; the Kansas City investment of $10,125,000 in 1900, which was largely property, built on some unknown original cash investment; and $3,725,000 of cash received for preferred stock in 1918. Thus, the total stockholders' contributions in cash or property did not exceed $14,000,000 in 50 years, and probably were less.

Apart from profits, the net worth was increased in 1911 by $19,783,000 added to the surplus account for appraisal of physical properties. This may well have been due in part to excessive depreciation charged off in the past. It was the custom of P. D. Armour to treat new construction most conservatively, charging it off against earnings in large amounts at the time of its addition to the plant.

The following table recapitulates the financial history of the company:

Recapitulation of financial history, 1868–1918.

[Per company figures unadjusted by Commission.]

Original investment, 1868		$160,000
Add:		
Reported net profits, 50 years	$179,270,000	
Capital stock sold for cash, 1918	3,725,000	
Kansas City property added to surplus, 1900	10,125,000	
Appraisal of property value added to surplus, 1911	19,783,000	
Total additions		212,903,000
		213,063,000
Deduct:		
Cash dividends and drawings paid, 50 years	$29,866,000	
Sundry surplus adjustments	10,105,000	
Total deductions		39,971,000
Net worth of stockholders' equity Nov. 2, 1918		173,092,000

Section 4. Financial history of Swift & Co.

TABLE 3.—*Financial history of Swift & Co., 1886–1918.*

[Per company figures unaudited by Commission.]

Fiscal year.	Reported net profits for year.	Cash dividends paid.	Beginning of fiscal year.			Rate of profit on net worth.
			Capital stock, common.	Surplus.	Net worth.	
			[3]			P. ct.
1885			$300,000			[1]
1886	[1]	[2] $691,006	300,000	[1]	[1]	[1]
1887	[1]	360,000	300,000	[1]	[1]	[1]
1888	[1]	650,000	3,000,000	[1]	[1]	[1]
1889	[1]	400,000	5,000,000	[1]	[1]	[1]
1890	[1]	2,050,000	5,000,000	[1]	[1]	[1]
1891	[1]	600,000	7,500,000	[1]	[1]	[1]
1892	[1]	600,000	7,500,000	[1]	[1]	[1]
1893	[1]	2,518,000	7,500,000	[1]	[1]	[1]
1894	[1]	1,098,000	13,767,000	[1]	[1]	[1]
1895	[1]	826,000	13,767,000	[1]	[1]	[1]
Total dividends paid first 10 years		9,793,000				

[1] Figures not available.
[2] From earnings for first 18 months' business.
[3] Stockholders' original investment.

TABLE 3.—*Financial history of Swift & Co., 1886–1918*—Continued.

Fiscal year.	Reported net profits for year.	Cash dividends paid.	Beginning of fiscal year.			Rate of profit on net worth.
			Capital stock, common.	Surplus.	Net worth.	
1896	$1,198,000	$826,000	$13,767,000	$238,000	$14,005,000	8.6
1897	977,000	826,000	13,767,000	609,000	14,376,000	6.8
1898	1,199,000	882,000	13,767,000	760,000	14,527,000	8.3
1899	2,085,000	1,236,000	15,000,000	1,077,000	16,077,000	13.0
1900	1,854,000	1,334,000	20,000,000	1,926,000	21,926,000	8.5
1901	2,676,000	1,376,000	20,000,000	2,446,000	22,446,000	11.9
1902	3,063,000	1,563,000	20,000,000	3,746,000	23,746,000	12.9
1903	3,000,000	1,750,000	25,000,000	5,246,000	30,246,000	9.9
1904	4,025,000	2,275,000	25,000,000	6,496,000	31,496,000	12.8
1905	4,200,000	2,450,000	35,000,000	8,246,000	43,246,000	9.7
1906	5,738,000	3,238,000	35,000,000	9,996,000	44,996,000	12.8
1907	6,204,000	3,500,000	50,000,000	12,496,000	62,496,000	9.9
1908	6,300,000	3,500,000	50,000,000	15,200,000	65,200,000	9.7
1909	8,025,000	4,025,000	50,000,000	18,000,000	68,000,000	11.8
1910	7,050,000	4,200,000	60,000,000	22,000,000	82,000,000	8.6
1911	6,138,000	4,988,000	60,000,000	24,850,000	84,850,000	7.4
1912	8,250,000	5,250,000	60,000,000	26,000,000	86,000,000	9.6
1913	9,250,000	5,250,000	75,000,000	29,000,000	104,000,000	8.9
1914	9,450,000	5,250,000	75,000,000	33,000,000	108,000,000	8.8
1915	14,088,000	5,438,000	75,000,000	37,200,000	112,200,000	12.6
1916	20,465,000	6,000,000	75,000,000	45,850,000	120,850,000	16.9
1917	[1] 44,650,000	[2] 35,000,000	75,000,000	60,315,000	135,315,000	33.0
1918 (13 months)	[1] 44,364,000	9,000,000	[2] 100,000,000	59,965,000	159,965,000	26.2
1919			[3] 150,000,000	[4] 84,576,000	234,576,000	
Total, 24 years, 1896–1918	214,249,000	109,157,000				
Total cash dividends paid, 1886–1917		118,950,000				

[1] Profits before deducting Federal income and excess-profits taxes (as estimated).
[2] Extra dividend of 33⅓ per cent paid November, 1917, amounting to $25,000,000. Capital stock increased by like amount simultaneously.
[3] Capital stock increased $50,000,000, of which $25,000,000 was stock dividend.
[4] Includes an addition of $30,746,000 for appraisal of properties.

Swift & Co. incorporated in 1885 with a capital stock issue of $300,000. Gustavus F. Swift had been in the cattle business for some time before this. Less than two years after organization dividends amounting to $691,000 were paid, which more than reimbursed the stockholders for the principal of their original cash contribution. Particulars of the profits of the company during its first 10 years of operation have not been obtained, but that those profits were large is evidenced by the fact that $9,793,000 was distributed in dividends. During this early period various extra cash dividends were paid and immediately thereafter capital stock was increased. The stockholders were thus supplied with cash which might be devoted to the purchase of new stock. The amount of cash thus made available to buy new stock was probably sufficient to purchase at least 40 per cent of the new stock issues at par and these were to that extent practically stock dividends.

Since 1896 the profits of the company have grown steadily. As in the case of Armour & Co., earnings both in dollars and in rate, beginning with 1916, have been extraordinary, reaching $44,650,000 in 1917, or 33 per cent on net worth—by far the most profitable year

shown. Dividends since 1896 have increased steadily in amount, holding to an average rate of about 8 per cent, with a special 33⅓ per cent cash dividend in 1917.

The capital stock, which is all common, has increased regularly since 1896 (when it stood at $13,767,000) to $150,000,000 at the close of 1918. During this period the increments have all been paid for in cash with the exception of a $25,000,000 stock dividend in 1918 (one-half the increase during that year) and what amounted to a stock dividend in 1917, when a cash dividend of $25,000,000 was declared, stockholders being given the right forthwith to subscribe to $25,000,000 of new stock.

During the last 23 years Swift & Co.'s profits were reported as $214,249,000, out of which dividends amounting to $109,157,000 have been paid, leaving $105,092,000 in the business (or reserved for income taxes in 1917 and 1918).[1] The financial history of this period is recapitulated as follows:

Recapitulation of financial history, 1896–1918.

[Per company figures unadjusted by Commission.]

Net worth, 1896		$14,005,000
Add:		
Reported net profits 23 years	$214,249,000	
Capital stock sold for cash during period	[2] 111,233,000	
Appraisal of property value added to surplus, 1918	30,746,000	
Total additions		356,228,000
		370,233,000
Deduct:		
Cash dividends paid 23 years	$109,157,000	
Sundry surplus adjustments	26,500,000	
Total deductions		135,657,000
Net worth or stockholders' equity Nov. 2, 1918		234,576,000

In that $25,000,000 of "Stock sold for cash" in the above table was furnished the stockholders by the company in the form of a special cash dividend of 33⅓ per cent in 1917, it is possible to reconstruct this table, deducting 25 millions from "Stock sold for cash," leaving the figure $86,233,000, and deducting 25 millions from

[1] It should be remembered, however, that these figures are as reported by the company and have not been subject to adjustment of any kind. That such adjustments should be made is well illustrated by the fact that in 1915, Swift & Co. wrote off net to annual profit and loss $3,349,000 from the book value of "securities," without disposing of any of the investment so held. This necessarily resulted in a decrease in the statement of earnings for that year, without any real loss having been sustained.

[2] $25,000,000 of this amount was provided by an extra dividend of 33⅓ per cent declared in 1917.

"Cash dividends paid," leaving the figure $84,157,000, and arriving at the same figure for net worth, November 2, 1918, of $234,576,000. Under this construction, it would appear that net worth during the last 23 years had been accumulated as follows:

Reported profits	$214,249,000
Less cash dividends paid	84,157,000
Net profits reinvested in business	130,092,000
New cash capital	86,233,000

or considerably more by reason of profits put back into the business than by reason of new cash capital.

From an original investment of $300,000 in 1885, Swift & Co. has grown in 33 years to a position where the stockholders' equity is now valued at $234,576,000, and more than half of this increase (taken at $130,092,000) has come from profits (over and above reasonable dividends) invested in the business, and $30,746,000 by reason of an appraisal of the property account in the fiscal year 1918.

Section 5. Financial history of Morris & Co.

TABLE 4.—*Financial history of Morris & Co., 1909–1918.*

[Per company figures unaudited by Commission.]

Fiscal year—	Reported net profits.	Cash dividends paid.	Beginning of fiscal year.			Rate of profit on net worth.
			Capital stock.	Surplus.	Net worth.	
						Per cent.
1909	$2,071,000	$450,000	$3,000,000	$20,229,000	$23,229,000	8.9
1910	1,659,000	360,000	3,000,000	20,944,000	23,944,000	6.9
1911	1,037,000	180,000	3,000,000	22,137,000	25,137,000	4.1
1912	1,813,000	180,000	3,000,000	22,994,000	25,994,000	7.0
1913	1,917,000	360,000	3,000,000	24,626,000	27,626,000	6.9
1914	2,206,000	360,000	3,000,000	26,183,000	29,183,000	7.6
1915	2,321,000	750,000	3,000,000	27,939,000	30,939,000	7.5
1916	3,632,000	1,000,000	3,000,000	29,510,000	32,510,000	11.2
1917	[1] 7,242,000	150,000	3,000,000	32,142,000	35,142,000	20.6
1918	[1] 4,796,000	300,000	3,000,000	37,292,000	40,292,000	11.9
1919	.....	.....	3,000,000	[2] 52,822,000	55,822,000	.....
Total, 10 years	28,694,000	4,090,000	.....	.....	.....	.....

[1] Profits before deducting income taxes (as estimated).
[2] Surplus increased by appraisal estimated $11,612,000.

The financial history of Morris & Co. can only be presented for the past 10 years, 1909–1918. Officers of the company state that before 1909 balance sheets were not prepared. Strange as this may seem for so large an organization (an incorporated company since 1903), the fact remains that no such statements could be found. From 1903 to 1909 it is understood that Morris & Co., a Maine corporation, held the stock of the Fairbanks Canning Co., and in 1909 the latter was dissolved and its properties merged with Morris & Co.

Nelson Morris Co. was first organized in 1859, nine years before Armour & Co. commenced business as a partnership, but no records

could be found covering the long period of development. In 1903 Nelson Morris Co. seems to have been incorporated under the name of Morris & Co. In view of these circumstances, it is extremely improbable that the three millions of capital stock (now outstanding) was paid in in cash at the time of incorporation, but represents rather a part of the surplus of Nelson Morris Co., which surplus grew out of reinvested earnings from a very much smaller original cash investment in the remote past. It is to be noted that Morris & Co., so far as the records show, has not followed the practice of the other great packers in capitalizing its surplus account by the issue of stock dividends. Thus, the latest balance sheet of the company (Nov. 2, 1918) exhibits more clearly than in the case of the balance sheets of the other companies the part which reinvested earnings have played in the building up of present net worth.

Capital stock	$3,000,000
Surplus	52,822,000
Total net worth Nov. 2, 1918	55,822,000

In 1909 the surplus stood at $20,229,000, presumably accumulated from reinvested profits, and by the end of 1918, this surplus had increased to $52,822,000, the bulk of the increment having come from earnings reinvested over the 10 years ending in 1918. Of the increase, however, $11,612,000 is estimated to have arisen from an appraisal of properties in 1918, when fixed assets were written up by that amount.

The earnings of Morris & Co. over 10 years, totaling $28,694,000, have been large, showing, as in the case of the other companies, a marked increase during the war period, 1915–1918. The falling off in 1918 over 1917, is not explained except as it may be accounted for by failure to take up foreign profits in that year, Morris & Co. having followed the example of Armour & Co., and Swift & Co., in divorcing its South American companies from the controlling company. Dividends over the ten years have varied from 5 per cent on capital stock in 1917 to 33⅓ per cent in 1916, the total amount being $4,090,000 for the period. The following table recapitulates the financial history of Morris & Co. so far as records are available:

Recapitulation of financial history, 1909–1918.

[Per company figures unadjusted by Commission.]

Net worth, 1909		$23,229,000
Add:		
Reported net profits, 10 years	$28,694,000	
Capital stock sold for cash		
Appraisal of property value added to surplus, 1918	11,612,000	
Total additions		40,306,000
		63,535,000

Deduct:		
Cash dividends paid, 10 years	$4,090,000	
Sundry surplus adjustments	3,623,000	
Total deductions		$7,713,000
Net worth or stockholders' equity, Nov. 2, 1918		55,822,000

Section 6. Financial history of Wilson & Co., Inc.

TABLE 5.—*Financial history of Wilson & Co., Inc., 1894–1918.*

[Per company figures unaudited by Commission, except as shown in footnote 2.]

(Deficit in Italics.)

Fiscal year—	Reported net profit.	Cash dividends paid.	Beginning of fiscal year. Capital stock, common.	Capital stock, preferred.	Capital stock, total.	Surplus or deficit.	Net worth.	Rate of profit on net worth.
								Per ct.
1894	$163,000	$175,000	$4,434,000	.....	$4,434,000	$260,000	$4,694,000	3.5
1895	363,000	175,000	4,375,000	.....	4,375,000	248,000	4,623,000	7.9
1896	364,000	87,000	4,375,000	.....	4,375,000	435,000	4,810,000	7.6
1897	401,000	131,000	4,373,000	.....	4,373,000	711,000	5,084,000	7.9
1898	710,000	.....	4,373,000	.....	4,373,000	982,000	5,355,000	13.3
1899	927,000	.....	4,373,000	.....	4,373,000	1,692,000	6,065,000	15.3
1900	719,000	.....	4,373,000	.....	4,373,000	1,619,000	5,992,000	12.0
1901	1,059,000	.....	4,373,000	.....	4,373,000	1,338,000	5,711,000	18.5
1902	902,000	.....	4,373,000	.....	4,373,000	2,397,000	7,170,000	12.6
1903	805,000	.....	4,373,000	.....	4,373,000	3,299,000	7,672,000	10.5
1904	701,000	.....	4,373,000	.....	4,373,000	4,103,000	8,476,000	8.3
1905	511,000	164,000	4,373,000	.....	4,373,000	4,645,000	9,018,000	5.7
1906	923,000	.....	4,373,000	.....	4,373,000	4,792,000	9,165,000	10.1
1907	913,000	.....	4,373,000	.....	4,373,000	5,715,000	10,088,000	9.1
1908	1,645,000	.....	4,373,000	.....	4,373,000	7,876,000	12,249,000	13.4
1909	2,302,000	.....	4,373,000	.....	4,373,000	9,124,000	13,497,000	17.1
1910–1911 (21 months)	1,644,000	[1] 703,000	4,373,000	.....	4,373,000	10,808,000	15,181,000	.....
1912	1,326,000	[1] 700,000	[2] 20,000,000	[2] $10,000,000	30,000,000	(2)	20,350,000	6.5
1913	1,364,000	[1] 700,000	20,000,000	10,000,000	30,000,000	(2)	20,976,000	6.5
1914 (15 months)	1,512,000	[1] 692,000	20,000,000	10,000,000	30,000,000	(2)	21,640,000	5.6
1915	2,464,000	[1] 684,000	20,000,000	9,835,000	29,835,000	(2)	22,294,000	11.1
1916	4,914,000	[1] 701,000	20,000,000	9,706,000	29,706,000	(2)	23,945,000	20.5
1917	[3] 8,126,000	[1] 713,000	20,000,000	10,133,000	30,133,000	(2)	28,083,000	28.9
1918	[3] 9,632,000	[1] 733,000	20,000,000	10,476,000	30,476,000	(2)	34,120,000	28.2
1919	.....	.....	20,000,000	10,476,000	30,476,000	(2)	38,894,000	.....
Total, 25 years	44,390,000	6,358,000	.....	.....	.....	.....	.....	.....

[1] Dividends on preferred stock only.
[2] Figures for surplus account omitted from table so as to prevent confusion which would be caused through exclusion of good will from the assets and consequent exclusion of a similar amount of liability. As surplus account would be the balancing entry on the books the excluded amount would naturally be looked for in that column, but in this case it affects the capital stock issued and would force a real surplus to an apparent deficit by not being able to adjust the capital-stock column to actual instead of par value. Amount so excluded, $12,591,000.
[3] Profits before deducting Federal income and excess profits taxes (as estimated).

In 1893, the business of Wilson & Co., Inc., theretofore operated as a partnership (founded in 1853), was incorporated under the style of Schwarzschild & Sulzberger Co. The original cash investment is unknown, but it is doubtful if any new cash was added at the time of this incorporation, stock probably being issued out of the partnership surplus. At the beginning of the fiscal year 1894 the

total common stock outstanding amounted to $4,434,000 and the account changed but little to the time of reorganization in 1910.

Profits from 1894 to 1918 have aggregated $44,390,000, the increase during the war years 1916–1918, being especially marked both in dollars and in rates of profit on net worth. Dividends during the period aggregate $6,358,000. Since 1911 dividends at the rate of 7 per cent have been paid on preferred stock only. (In May, 1919, the first dividend on common stock since the reorganization in 1910 was declared.) Dividends from 1894 to 1910, were irregular, having been passed altogether in 11 of the 16 years. Thus the surplus account grew very rapidly, but even had a 10 per cent dividend been declared regularly there would still have remained in every year after 1897 a large amount of earnings over and above such dividend, to be reinvested in the business.

In 1910 Sulzberger & Sons Co. was organized under the laws of the State of New York with an authorized capital stock of $32,000,000 (consisting of $20,000,000 common stock and $12,000,000 6 per cent preferred stock—the rate of which was raised later to 7 per cent) and acquired the business of Schwarzschild & Sulzberger Co. Thirty million dollars of this stock was immediately issued in exchange for the assets of the old company and $4.730,000 in cash, this cash representing sales of preferred stock.

In making this transfer of ownership a virtual capitalization of the surplus of the old company amounting to $10,808,000 was effected, which together with the capital stock outstanding, $4,373,000, represented the book value of the old company, namely, $15,181,000.

The amount paid (in stock of the Sulzberger & Sons Co.) for these assets, $25,270,000 ($30,000,000 stock issued less $4,730,000 sold for cash) was therefore $10,089,000 in excess of the amount shown by the books of Schwarzschild & Sulzberger Co. and represents the amount of value attributed to the company as a going concern. To cover this apparent excess value an intangible asset (good will) was created and incorporated in the books of Sulzberger & Sons Co., but valued at $12,591,000, a difference of $2,502,000 which must have been credited to surplus. (See Exhibit A.)

In 1916 the Sulzberger & Sons Co. changed its name to Wilson & Co., Inc., and the Sulzberger interests gave way to Thomas E. Wilson and a group of New York bankers (see Part II of this report). No legal reorganization of the company took place, but simply a change of name and of stock ownership. After the change of management the company began to issue additional preferred stock, and by the end of the fiscal year 1918 $10,476,000 was outstanding, the 4,760 additional shares over and above those outstanding in 1914 having been issued for cash. Adding this $476,000 to the $4,730,500 of pre-

ferred stock issued for cash up to 1911, the cash contributions to the company since 1910 on the part of all stockholders amounted to $5,207,000. Thus of a capitalization amounting to $30,476,000 in 1918 only $5,207,000 is known to have been contributed in cash, the balance being made up by the original cash investment of the old partnership (probably a relatively small item) and accumulated earnings reinvested in the business.

The balance sheet of December 28, 1918, still shows a good will account of $11,371,000 among the assets (sundry credits having been made to it since 1911, but the surplus account of the same date is reported as $19,789,000.

In preparing the foregoing table of financial history for Wilson & Co. good will has been arbitrarily deducted from the assets and from net worth, in order to follow the practice of the Food Administration in determining rates of profit, and to make the figures as comparable as may be with those of the other packers who carry practically no good will on their balance sheets. The following table recapitulates the financial history of Wilson & Co., Inc.:

Recapitulation of financial history, 1894–1918.

[Per company figures unadjusted by Commission, except by the elimination of good will.]

Net worth, 1894		$4,694,000
Add:		
Reported net profits, 25 years	$44,390,000	
Capital stock sold for cash during period	5,207,000	
Appraisal of property value added to surplus, 1907–1914	3,652,000	
Total additions		53,249,000
		57,943,000
Deduct:		
Cash dividends paid, 25 years	$6,358,000	
Sundry surplus adjustments	12,691,000	
Total deductions		19,049,000
Net worth or stockholders' equity, Dec. 31, 1918		38,894,000

Thus it appears that Wilson & Co., Inc., passed through a period of extensive reorganization which affected dividend payments, but its financial fortunes, measured in terms of net profit, have increased steadily during the past 25 years, and, as in the case of the other packers, the major share of its present net worth is derived from reinvested profits, rather than from new cash contributions on the part of the stockholders.

Section 7. Financial history of Cudahy Packing Co.

TABLE 6.—*Financial history of Cudahy Packing Co., 1888–1918.*

[Per company figures unaudited by Commission.]

Fiscal year—	Reported net profit for year.	Cash dividends paid during year.	Beginning of fiscal year.					Rate of profit on net worth beginning of year.
			Capital stock, common.	Capital stock, preferred.	Capital stock, total.	Surplus.	Net worth.	
								Per cent.
1888	$50,000	.....	$750,000	.....	$750,000	.....	$750,000	6.7
1889	150,000	.....	750,000	.....	750,000	$50,000	800,000	18.8
1890	500,000	.....	750,000	.....	750,000	200,000	950,000	52.6
1891	825,000	.....	750,000	.....	750,000	700,000	1,450,000	56.9
1892	720,000	.....	750,000	.....	750,000	1,525,000	2,275,000	31.6
1893	800,000	$800,000	750,000	.....	750,000	2,245,000	2,995,000	26.7
1894	114,000	114,000	3,500,000	.....	3,500,000	.....	3,500,000	3.3
1895	300,000	300,000	3,500,000	.....	3,500,000	.....	3,500,000	8.6
1896	440,000	440,000	3,500,000	.....	3,500,000	.....	3,500,000	12.6
1897	275,000	275,000	3,500,000	.....	3,500,000	.....	3,500,000	7.9
1898	414,000	114,000	3,500,000	.....	3,500,000	.....	3,500,000	11.8
1899	690,000	690,000	3,500,000	.....	3,500,000	300,000	3,800,000	18.2
1900	483,000	222,000	3,500,000	.....	3,500,000	300,000	3,800,000	12.7
1901	863,000	120,000	3,500,000	.....	3,500,000	1,500,000	5,000,000	17.3
1902	1,400,000	720,000	5,000,000	[2] 2,000,000	7,000,000	743,000	7,743,000	18.1
1903	103,000	.....	5,000,000	2,000,000	7,000,000	1,423,000	8,423,000	1.2
1904	928,000	240,000	5,000,000	2,000,000	7,000,000	1,526,000	8,526,000	10.9
1905	882,000	120,000	5,000,000	2,000,000	7,000,000	2,214,000	9,214,000	9.6
1906	946,000	120,000	5,000,000	2,000,000	7,000,000	2,976,000	9,976,000	9.5
1907	1,251,000	820,000	5,000,000	2,000,000	7,000,000	3,802,000	10,802,000	11.6
1908	3,009,000	1,120,000	10,000,000	2,000,000	12,000,000	431,000	12,431,000	24.2
1909	2,261,000	1,120,000	10,000,000	2,000,000	12,000,000	2,320,000	14,319,000	15.8
1910	1,019,000	820,000	10,000,000	2,000,000	12,000,000	3,461,000	15,461,000	6.6
1911	379,000	120,000	10,000,000	2,000,000	12,000,000	3,660,000	15,660,000	2.4
1912	1,129,000	520,000	10,000,000	2,000,000	12,000,000	3,919,000	15,919,000	7.1
1913	1,329,000	820,000	10,000,000	2,000,000	12,000,000	4,529,000	16,529,000	8.0
1914	1,402,000	520,000	10,000,000	2,000,000	12,000,000	5,038,000	17,038,000	8.2
1915	724,000	114,000	10,000,000	2,000,000	12,000,000	5,920,000	17,920,000	4.0
1916	3,011,000	749,000	10,000,000	2,000,000	12,000,000	6,529,000	18,529,000	16.3
1917	[1] 5,521,000	1,164,000	[3] 5,450,000	[3] 8,550,000	[3] 14,000,000	6,456,000	20,456,000	27.0
1918	[1] 5,777,000	1,380,000	11,450,000	8,550,000	20,000,000	7,730,000	27,730,000	20.9
1919	.....	.....	11,450,000	8,550,000	20,000,000	[3] 12,493,000	32,493,000	.....
Total 31 years.	37,695,000	13,542,000	.....	.....	.....	.....	.....	.....

[1] Profits before deducting Federal income and excess profits taxes.
[2] Total capital stock increased by $2,000,000 stock dividend; $6,550,000 of common stock converted into preferred.
[3] Surplus increased by appraisal of properties, $2,393,000.

The concern now known as the Cudahy Packing Co. was first incorporated in Illinois with a capital stock of $750,000 under the name of the Armour-Cudahy Packing Co. The two members of the Cudahy family, Michael and Edward A., together with Philip D. Armour (founder of Armour & Co.), were the sole subscribers to the original capital stock.

The name was changed in December, 1890, to the Cudahy Packing Co., the Armour interests in the original corporation having at that time been acquired by the Cudahy family. The family exercised practically sole ownership until the end of 1915, when the company was reorganized under the laws of Maine and a policy adopted looking toward a wider distribution of capital stock. This policy by no means removed the control of the company from the

hands of the Cudahy family, who still continue to be the principal stockholders.

The annual profits of the company during the period of its existence from 1888 to 1918 show considerable variation, ranging, in rate of profit on net worth, from 1.2 per cent in 1903 to 56.9 per cent in 1891. Profits in dollars and in rate, covering the last three war years, 1916–1918, have been extremely high, reaching the rate of 27 per cent on net worth in 1917. In spite of a few low profit years the growth of the company has been steady, and the rates of return on net worth generally high. The total reported earnings for the 31 years aggregate $37,695,000, of which $13,542,000 were paid out in dividends, the balance (after deducting income taxes in 1917 and 1918) being reinvested in the business. In the period under review $12,776,000 of stock dividends were declared as follows:

1893	$2,750,000
1901	1,500,000
1907	3,802,000
1916	2,000,000
1917	2,724,000
Total	12,776,000

Of the $20,000,000 of capital stock outstanding on November 2, 1918, $11,450,000 was common stock and $8,550,000 preferred stock. As is readily seen from the above summary, $7,224,000 of this total capitalization was issued for cash at various times, including the original investment of $750,000, the balance having come about through issuing stock dividends. Of the total issue of preferred stock, $2,000,000 was subscribed for in cash in 1902, the balance, $6,550,000, being issued at the beginning of the fiscal year 1916, in exchange for an equal amount of common stock (for detailed discussion of this transaction see Exhibit B). Thus it is seen that the bulk of the preferred stock does not represent an obligation assumed by the company in return for any cash contribution made to it, but represents rather the capitalization of accumulated surplus. The following table recapitulates the financial history of the company:

Recapitulation of financial history, 1888–1918.

[Per company figures unadjusted by Commission.]

Original investment, 1888		$750,000
Add:		
Reported net profits 31 years	$37,695,000	
Capital stock sold for cash during period	6,473,000	
Appraisals of property, 1918	2,393,000	
Total additions		46,561,000
		47,311,000

Deduct:		
Cash dividends paid 31 years	$13,542,000	
Sundry surplus adjustments	1,276,000	
Total deductions		$14,818,000
Net worth or stockholders' equity, Nov. 2, 1918		32,493,000

Thus it appears that while the net worth of the company grew from $750,000 in 1888 to $32,493,000 in 1918, about $24,000,000 of this increase came out of surplus profits reinvested in the business, $6,473,000 from the stock sold for cash, and $1,117,000 was accounted for by sundry surplus adjustments, showing that the Cudahy Packing Co., as in the case of the other great packers, has grown primarily from profits reinvested in the business.

Charts A and B exhibit graphically the growth in the earnings of the five great companies over the historical periods just reviewed.

Section 8. Earnings in recent years.

As already explained the figures presented in the foregoing historical tables have not been submitted to analysis or adjustment[1] but follow the actual reports of the packers.

Coming now to a closer analysis of earnings, a study has been made of the accounting methods of the packers as reflected in their final profit and loss accounts, and balance sheets for the six years, 1912 to 1917. This study has necessitated making a number of adjustments in earnings as shown in the historical tables for these years, and accordingly figures of profit on the tables about to be presented will be found not to agree with those shown on the historical tables in all cases. Without, at this point, going into the specific reasons for adjustments made (for this analysis see Ch. III) it may be said in general, that changes have been necessary because of the manner in which income and excess profits taxes, inventory and other reserves, subsidiary company earnings, surplus adjustments, and depreciation have been handled on the books of the packers, and the erroneous methods used in treating these items for reported statements of annual earnings. (For a reconciliation of the original figures and the figures as adjusted by the Commission, see Exhibit C.)

Adjustments have been made in accordance with certain obvious principles of modern accounting so far as those principles apply to a proper definition of "annual earnings." No complete audit of the books was made for the six years in question, and it is probable that

[1] Income and excess profits tax reserves are not deducted from earnings in 1917 and 1918, and thus constitute the only adjustment made in earnings as reported by the packers.

CHART A.—Net profits and dividends of Armour & Co. and Swift & Co., 1885–1918.

Total rectangle shows net profit, black portion shows dividends paid.

(See Tables 2 and 3 for actual figures.)

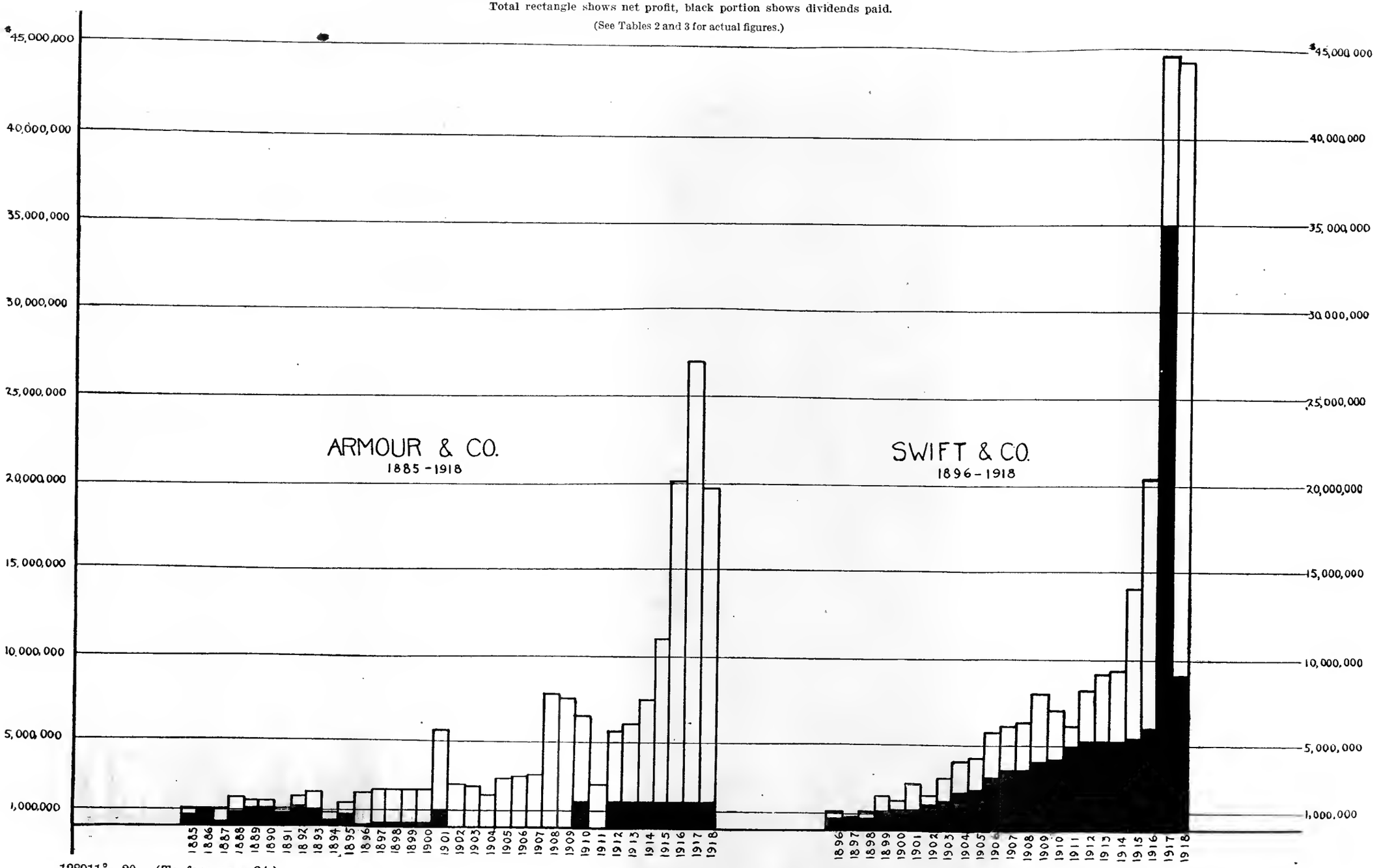
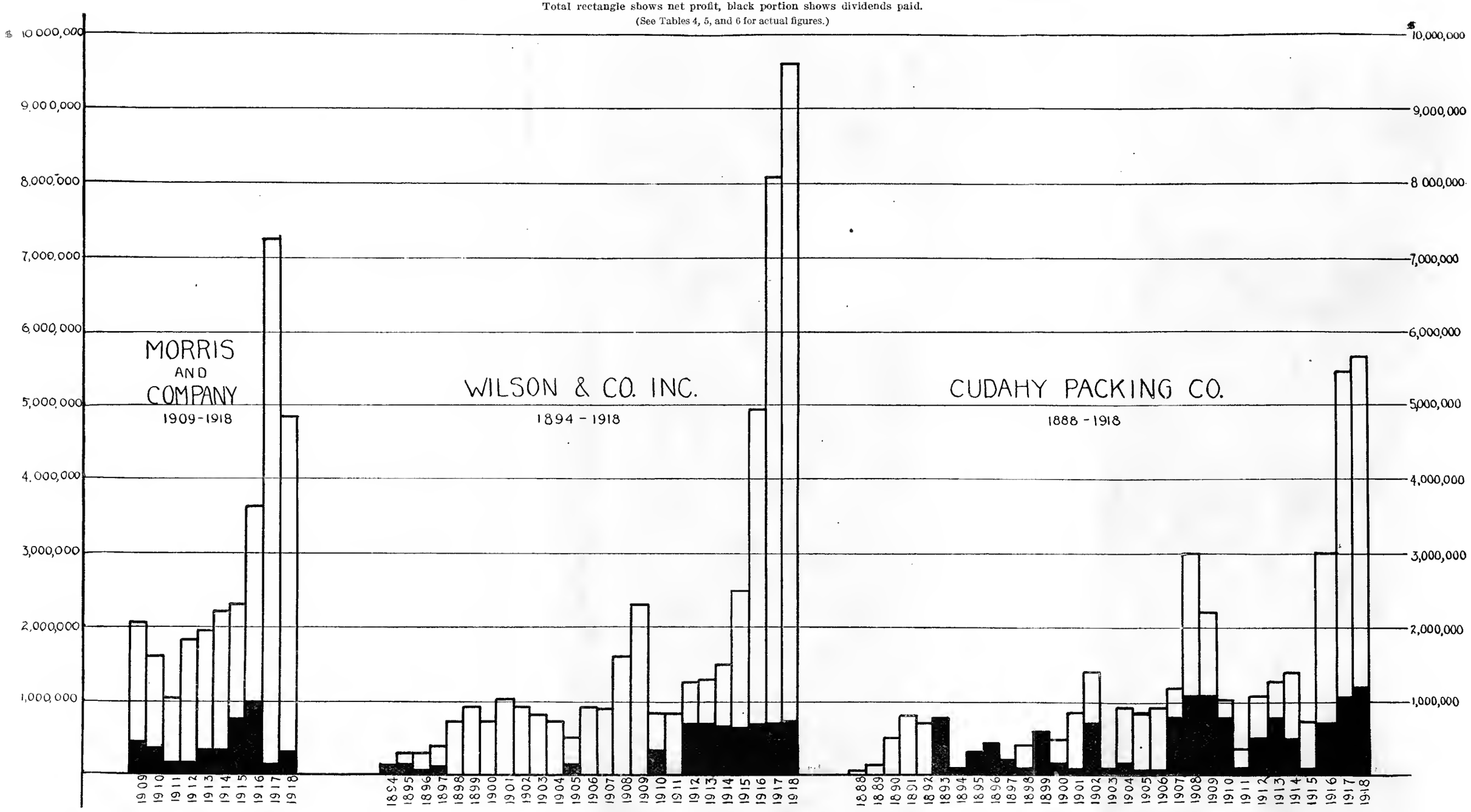


CHART B.—Net profits and dividends of Morris & Co., 1909–1918; Wilson & Co., 1894–1918; Cudahy Packing Co., 1888–1918.

Total rectangle shows net profit, black portion shows dividends paid.

(See Tables 4, 5, and 6 for actual figures.)



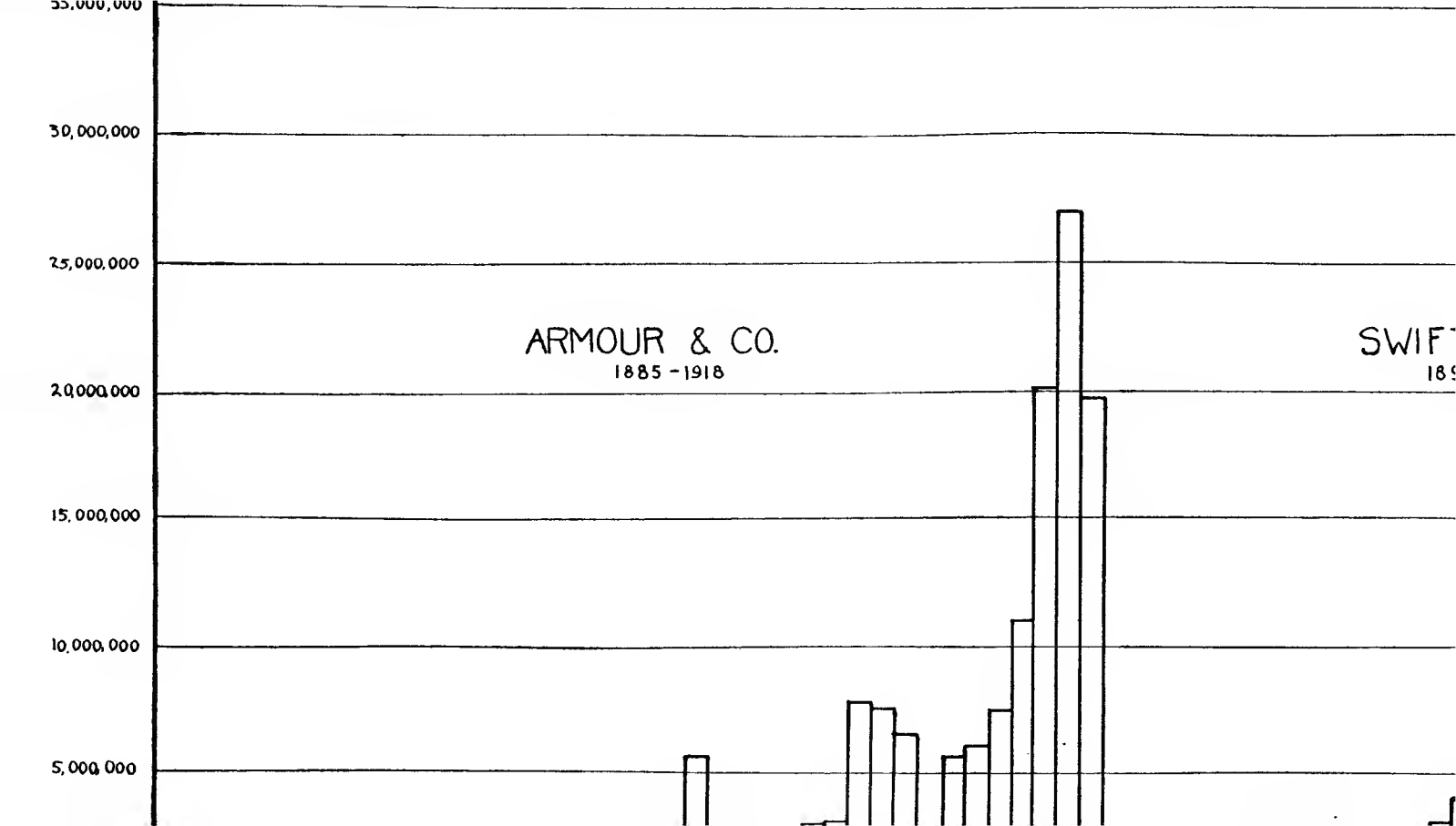
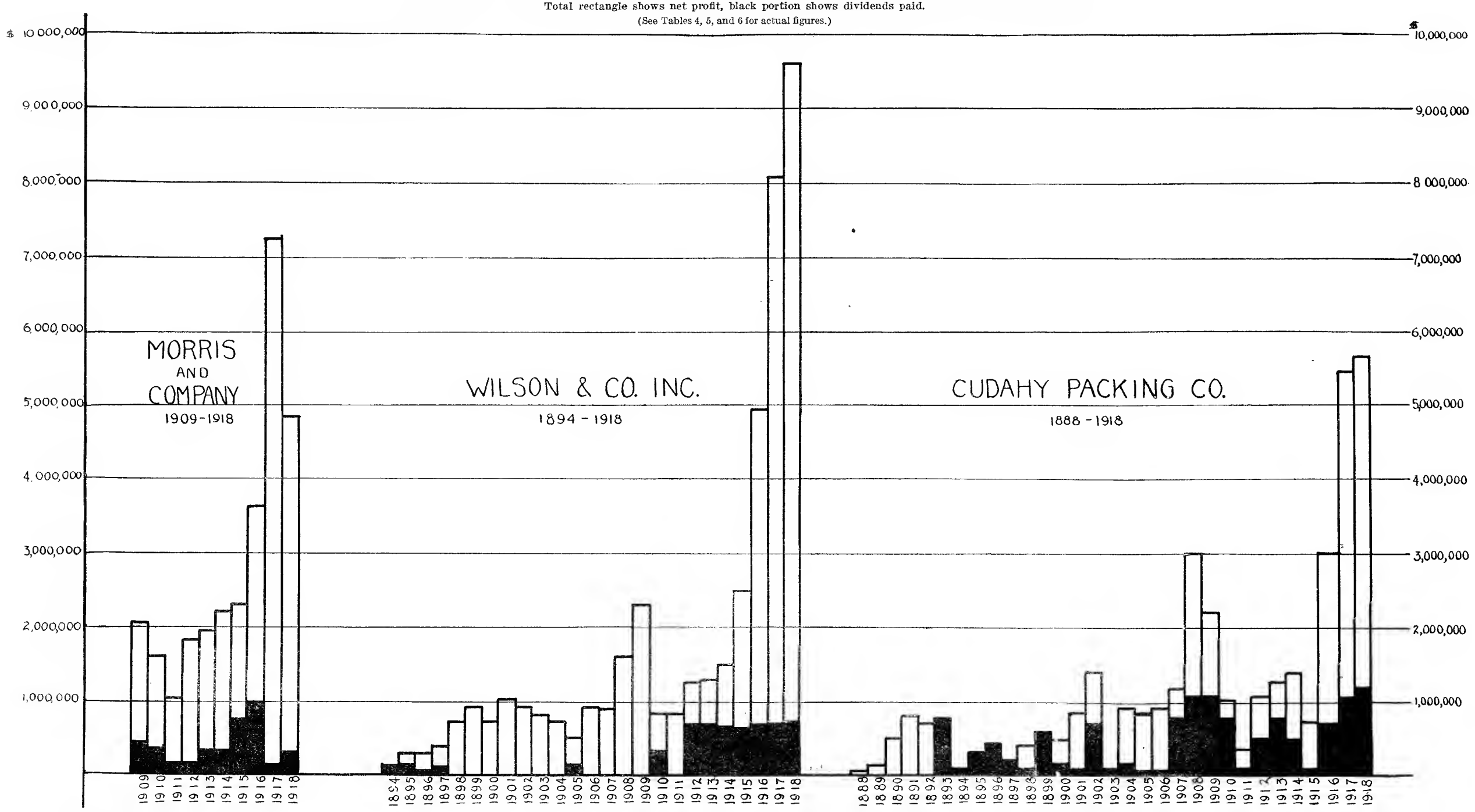

35,000,000
30,000,000
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
ARMOUR & CO.
1885 - 1918
SWIF
18

CHART B.—Net profits and dividends of Morris & Co., 1909–1918; Wilson & Co., 1894–1918; Cudahy Packing Co., 1888–1918.

Total rectangle shows net profit, black portion shows dividends paid.

(See Tables 4, 5, and 6 for actual figures.)



had such an audit been made, more instances calling for adjustment would have come to light.

Furthermore, as will be disclosed in Chapter III, a large part of the accounting theory and system of the great packers rests upon an untenable foundation, and accordingly the reliance which can be placed on reported earnings even as adjusted, in any given year, is extremely problematical. The case is so serious that only a sweeping revision of accounting methods and practices can at some future date provide reliable figures of cost and profit. Adjustments made in figures compiled under the existing methods can do little except to bring about a somewhat nearer approximation to the actual underlying facts than the packers' reported figures now exhibit, and in no sense can these adjusted figures be taken as final.

With these limitations in mind the following study of the earnings of the great companies from 1912 to 1917, inclusive, is presented. In the year 1918 the profit regulation of the Food Administration was put into effect.

There are a number of definitions in use as to what constitutes "profit" or "earnings," and accordingly it is desired to make clear exactly what definition the Commission follows in the accompanying tables. Table 7 shows adjusted earnings. The word "adjusted" signifies that these figures depart from the historical tables of packers' profits already shown, by reason of adjustments and corrections made by the Commission. For the purposes of this report, "earnings" are arrived at substantially as follows: From the sales of the company, raw material costs, direct operating costs, selling expenses and administrative expenses are deducted, and to this result is added miscellaneous income derived from rents, interest, dividends, etc., and from it are deducted all miscellaneous charges except interest paid on borrowed money, and income and excess profits tax payments. Out of such profit, the bondholder and the banker must be paid, the Government receive its share in the form of income and excess profits taxes, the balance accruing to the stockholders for such disposition as they may elect to make of it.

Table 8 shows adjusted net profits. This figure only departs from "earnings" shown on Table 7, by the deduction of interest on borrowed money as an item of expense. Items affecting the operations of other years, and special distributions of, or accretions to, surplus account, are excluded altogether from "net profits," as from "earnings." Out of "net profits" as thus defined, the Government receives its share in income and excess profits taxes, the balance accruing to the stockholders for such disposition as they may elect to make of it.

Table 9 shows balance of net profits available for dividends or surplus, which is the amount of net profits remaining after income

and excess profits taxes are paid, and extraordinary distributions in the form of pension funds, special bonuses, etc., provided for.

Thus the following tables exhibit earnings from three points of view, viz: (1) From the standpoint of the industry, or earnings derived from all capital invested whether borrowed or otherwise (earnings); (2) from the standpoint of the incorporated company considered as an entity (net profit); and (3) from the standpoint of the individual stockholder (balance available for dividends or surplus).

TABLE 7.—*Earnings of the five great packers, 1912–1917, before deducting interest (as adjusted by Commission).*

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Total.
1912	$8,659,000	$10,883,000	$2,707,000	[1] $1,658,000	$1,821,000	$25,728,000
1913	10,342,000	13,535,000	2,934,000	[1] 925,000	2,318,000	30,054,000
1914	12,201,000	13,512,000	3,057,000	[1] 3,642,000	2,416,000	34,828,000
1915	16,051,000	26,541,000	3,358,000	4,161,000	1,883,000	51,994,000
1916	27,430,000	26,732,000	5,879,000	6,957,000	4,417,000	71,415,000
1917	[2] 34,283,000	52,963,000	9,884,000	10,761,000	6,484,000	114,375,000
Total, 6 years	108,966,000	144,166,000	27,819,000	28,104,000	19,339,000	328,394,000
Operating profits in 3 prewar years, 1912–13–14	31,202,000	37,930,000	8,698,000	6,225,000	6,555,000	90,610,000
Operating profits in 3 war years, 1915–16–17	77,764,000	106,236,000	19,121,000	21,879,000	12,784,000	237,784,000
Excess war years	46,562,000	68,306,000	10,423,000	15,654,000	6,229,000	147,174,000
Per cent of excess	149	180	120	251	95	162

[1] As figured by Price, Waterhouse & Co., certified public accountants, before charging depreciation.
[2] Not including South American profits.

From this table it appears that the "earnings" of the five great packers combined for the six years 1912–1917 were $328,394,000, of which $90,610,000 was earned in the first three years, herein designated as "prewar" years and $237,784,000 was earned in the last three, or "war" years, 1915–1917. This shows an excess of the war years over the prewar years of $147,174,000, which is an increase of 162 per cent. The greatest per cent of increase for this period for individual companies is shown by Wilson & Co., Inc. (251 per cent), the smallest per cent of increase by the Cudahy Packing Co. (95 per cent). The former may be explained by the fact that earnings in 1912 and 1913 were abnormally low (even before charging depreciation), while the latter is explained in part by the relatively poor "war" year of 1915. While the European War began in August, 1914, the fiscal year 1914 for the packers extended from the fall of 1913 to the fall of 1914, and accordingly that fiscal year falls almost wholly within the prewar period. The considerable margin by which Swift & Co. exceeded Armour & Co. (180 per cent as against 149 per cent) is noteworthy, but it is explained in part by the fact that Armour & Co. did not report the great profits of its South American companies in 1917 (said to be about $6,000,000), although the earnings accrued to the same stockholders.

TABLE 8.—*Net profits of the five great packers, 1912–1917, after deducting interest (as adjusted by Commission).*

(Loss in italics.)

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Total.
1912	$5,702,000	$8,745,000	$1,813,000	[1] $646,000	$1,129,000	$18,035,000
1913	6,158,000	9,449,000	1,917,000	[1] *272,000*	1,329,000	18,581,000
1914	7,640,000	9,651,000	2,206,000	[1] 1,995,000	1,402,000	22,894,000
1915	11,156,000	20,720,000	2,321,000	2,464,000	724,000	37,385,000
1916	22,849,000	22,672,000	4,890,000	5,314,000	3,511,000	59,236,000
1917	[2] 27,137,000	47,236,000	8,012,000	8,319,000	4,935,000	95,639,000
Total, 6 years	80,642,000	118,473,000	21,159,000	18,466,000	13,030,000	251,770,000
Net profits in three prewar years, 1912, 1913, and 1914	19,500,000	27,845,000	5,936,000	2,369,000	3,860,000	59,510,000
Net profits in three war years, 1915, 1916, and 1917	61,142,000	90,628,000	15,223,000	16,097,000	9,170,000	192,260,000
Excess war years	41,642,000	62,783,000	9,287,000	13,728,000	5,310,000	132,750,000
Per cent of excess	214	225	157	576	138	223

[1] Before charging depreciation. [2] Not including South American profits.

Net profits for the great packers for the six years aggregate $251,770,000 according to this table. Of this total $59,510,000 was earned in the three prewar years, and $192,260,000 in the three war years, giving an excess of 223 per cent over the prewar total. Comparing this per cent of increase with that shown for earnings (Table 7) of 162 per cent, it appears that as earnings grew larger, interest charges in proportion to total earnings grew less, and where in the prewar years a relatively large amount of total earnings had to be turned over to bankers and bondholders, in the war years this proportion had shrunk greatly, the stockholders retaining a very much greater share of the total. In other words the increase in profit has been much greater than the increase in interest charges.

Wilson & Co., Inc., again shows the largest increase in per cent of excess (576 per cent), due as before to low earnings in 1912 and a positive loss in 1913.

Chart C shows graphically the net profit for the five companies combined, for the six years under review.

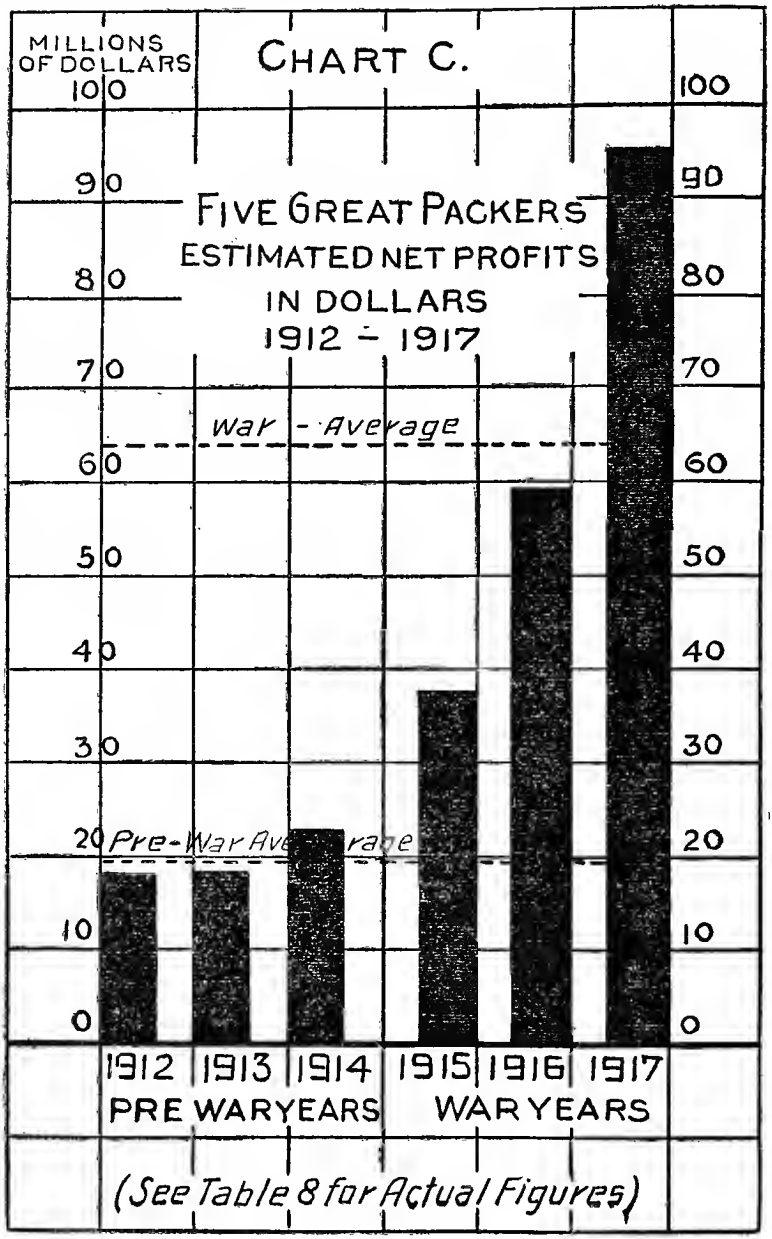
TABLE 9.—*Net profits of the five great packers available for dividends or surplus 1912–1917 (as adjusted by Commission).*

(Loss in italics.)

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Total.
1912	$5,702,000	$8,250,000	$1,813,000	[1] $646,000	$1,129,000	$17,540,000
1913	6,028,000	9,250,000	1,917,000	[1] *272,000*	1,329,000	18,252,000
1914	7,510,000	9,450,000	2,206,000	[1] 1,995,000	1,402,000	22,563,000
1915	11,000,000	19,595,000	2,321,000	2,464,000	724,000	36,104,000
1916	22,100,000	18,943,000	4,690,000	5,314,000	3,511,000	53,958,000
1917	[2] 21,294,000	34,650,000	6,162,000	6,698,000	3,985,000	72,789,000
Total, 6 years	73,634,000	100,138,000	19,109,000	16,845,000	12,080,000	221,806,000
Profits retained 3 prewar years, 1912–13–14	19,240,000	26,950,000	5,936,000	2,369,000	3,860,000	58,355,000
Profits retained 3 war years, 1915–16–17	54,394,000	73,188,000	13,173,000	14,476,000	8,220,000	163,451,000
Excess war years	35,154,000	46,238,000	7,237,000	12,107,000	4,360,000	105,096,000
Per cent of excess	183	171	122	511	113	180

[1] Before charging depreciation. [2] South American profits not included.

The foregoing table shows the amount of net profit estimated to have been retained by stockholders which can either be distributed



in the form of dividends or left as a part of their equity in the business. The "per cent of excess" for individual companies in the war

years are not as great as in the case of "net profits" (Table 8), due mainly to the fact that in 1917, the Government collected a heavy income and excess profits tax which came out of net profits before the stockholders' equity accrued. While these Federal taxes in 1917 have undoubtedly operated to hold down retainable profits, it is clear that, taken as a whole, the three war years (and even the year 1917 itself) were extremely profitable to the stockholders, giving them an increased equity far in excess of what they had enjoyed in the years immediately preceding the war.

Section 9. Rates of profit in recent years.

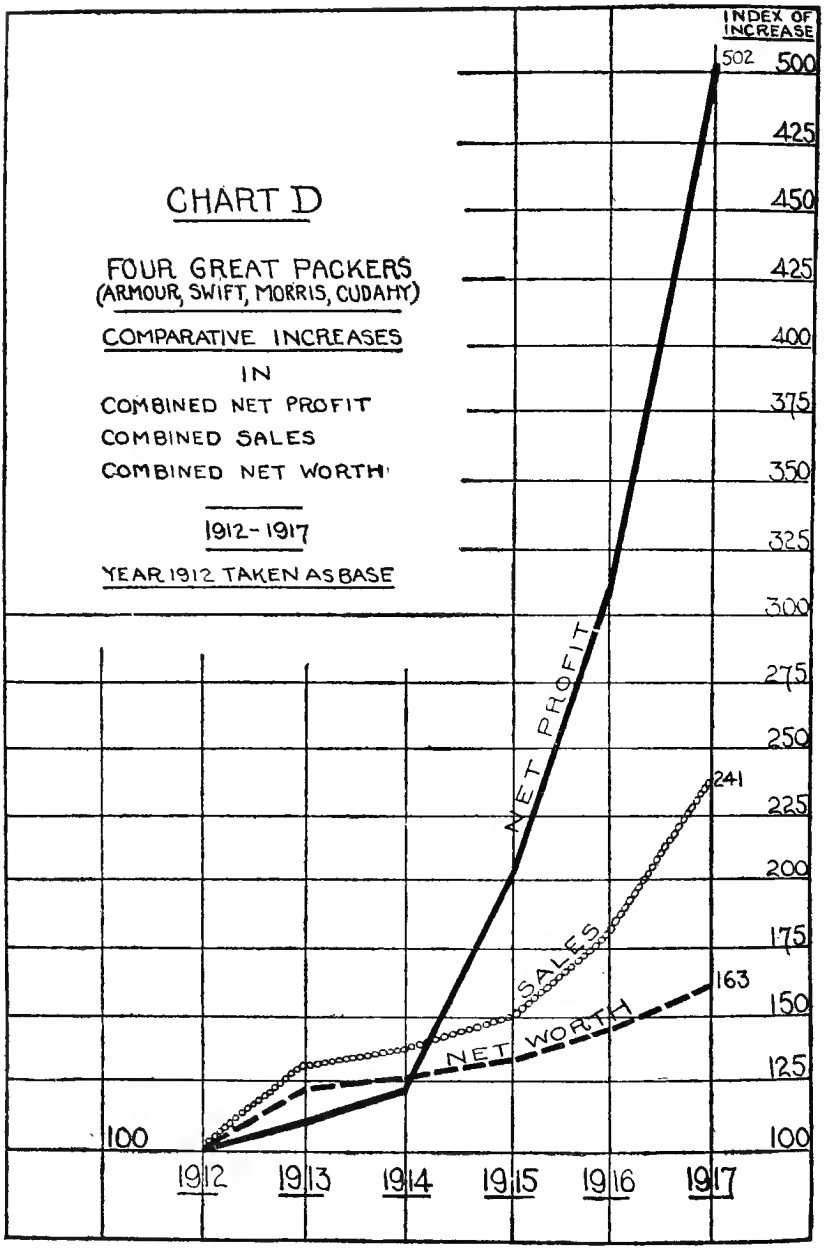
While the increase in packers' profits measured in dollars has been very large, it is desirable to make certain further comparisons before passing ultimate judgment as to earning power in recent years. Chart D shows the ratio of increases in net profits, net worth, and sales for four of the great packers in the six years under review. The sales curve is added as a matter of general interest. The greater increase in profits curve than in net worth curve, is particularly noteworthy.

Preliminary to exhibiting tables on which actual rates of profit are calculated, it will be well to discuss briefly the significance of rates or percentages as criteria of profit taking.

A number of bases are used upon which to calculate profit rates—for instance, the percentage of profit to stockholders' equity or net worth; the percentage of profit to investment including borrowed money; the percentage to capital stock; the percentage to actual investment in cash or property at actual value; the percentage to sales; the percentage to total costs; or, to shift the ground, the amount of profit per unit of product (per head or per pound in the packing business), and so forth. The packers themselves, it is to be noted, confine the bulk of their public announcements to profits per dollar of sales, or profits per head of animals, or per pound of beef products.

As to the proper basis for the purpose immediately in hand, there can be no question but that the rate of profit on investment furnishes the only sound criterion of packers' profits. Profits per pound, per head or per dollar of sales, while interesting from certain angles of study, are irrelevant to the main query, which can only contemplate the rate of return to capital invested in the packing business. If such capital is being unreasonably rewarded, the earnings per unit of output, or per dollar of sales have little or no significance. The rate per dollar of sales, furthermore, is especially misleading in that an unchanged return on investment in a sharply rising market (like the past three years) is bound, when figured in terms of profit on sales, to show a decreasing ratio, and hence to be

emphasized by interested parties as an argument for greater reasonableness of earnings.



Rate of profit on investment is then the best index, but the problem remains of defining "investment"—shall it be capital employed in the business, including borrowed money, net worth or capital stock?

Furthermore, as the definition of "investment" varies, so must the definition of what constitutes "profit" vary also. There seems to be no complete consensus of opinion, governmental or private, as to what constitutes the one best definition of "investment" for the purpose of judging the reasonableness of the rate of earnings thereon. Some authorities urge total investment, including borrowed money (such was the basis of the United States Food Administration's profit regulation of the packers in 1918), some urge net worth, and some capital stock outstanding. The Treasury Department in its excess profit tax law takes a figure closely approximating net worth, yet not quite identical therewith.

Under these circumstances the Commission does not desire to select one definition of investment only. It has accordingly, for the tables about to be presented, selected two definitions of investment, and shows the rate of profit estimated to have been earned by the packers in the six years under review, applicable to each. The two selected bases are as follows: (1) Total investment, i. e., net worth plus borrowed money, or, stated in another way, total assets less accounts and accrued items payable. Obviously, under this definition of investment, profit must be taken before interest is deducted as an expense, or as shown under the caption of "Adjusted earnings" on Table 7. (2) Net worth, i. e., capital stock and surplus or stockholders' equity. Under this definition of investment, profit must be taken after interest is deducted as an expense, or as shown under the caption "Adjusted net profit" on Table 8. There is also presented a third series of rates, based on the second definition of investment, i. e., net worth, these rates measuring the actual return to stockholders after income and excess profits taxes and special distributions of surplus have been allowed for. Strictly speaking this series (Table 14) does not represent a rate of profit actually earned by the company, but rather the rate upon that portion of the profit earned which is available for dividends or surplus.

No figures are presented showing the rate of profit on investment defined as "capital stock outstanding," as this gives in many cases a misleading view as to the reasonableness of the return. Such a rate would mean very little in the case of the packers because of the varying policies which the several companies have pursued in respect to issuing stock dividends. Morris & Co., whose surplus is now some 14 times greater than its capital stock, would show an enormous rate, while Armour & Co. which has capitalized surplus to a large extent would show a much lower rate—though the earnings of the two companies based on net worth or on total investment were not very dissimilar.

The following table exhibits in dollars, so-called "total investment" for the five companies for the six years under review. These

figures have been adjusted by the Commission to the extent of allowing for any adjustments already made in "net profits" which are reflected on the balance sheet.

TABLE 10.—*Total investment of the five great packers, including borrowed money, 1912–1917 (as adjusted by Commission).*

Beginning of fiscal year.	Net worth (capital and surplus).	Bonds.	Notes payable.	Total investment.
Armour & Co.:				
1912	$76,710,000	$30,000,000	$10,255,000	$116,965,000
1913	100,195,000	30,000,000	15,523,000	145,718,000
1914	104,223,000	30,000,000	25,815,000	160,038,000
1915	109,733,000	30,000,000	40,914,000	180,647,000
1916	118,733,000	30,000,000	38,865,000	187,598,000
1917	137,335,000	50,000,000	27,866,000	215,201,000
Morris & Co.:				
1912	25,994,000	12,100,000	6,936,000	45,030,000
1913	27,626,000	11,900,000	7,366,000	46,892,000
1914	29,183,000	11,700,000	9,815,000	50,698,000
1915	30,939,000	11,500,000	10,134,000	52,573,000
1916	32,510,000	11,300,000	8,648,000	52,458,000
1917	36,000,000	11,100,000	9,249,000	56,349,000
Cudahy Packing Co.:				
1912	15,919,000	4,538,000	6,995,000	27,452,000
1913	16,529,000	4,272,000	8,042,000	28,843,000
1914	17,038,000	4,020,000	10,502,000	31,560,000
1915	17,920,000	3,780,000	13,793,000	35,493,000
1916	18,529,000	3,519,000	17,238,000	39,286,000
1917	20,956,000	3,274,000	16,501,000	40,731,000
Swift & Co.:				
1912	86,000,000	5,000,000	15,883,000	106,883,000
1913	104,000,000	5,000,000	24,649,000	133,649,000
1914	108,000,000	5,000,000	39,160,000	152,160,000
1915	112,000,000	10,000,000	39,539,000	161,539,000
1916	125,873,000	24,500,000	32,933,000	183,306,000
1917	138,815,000	31,311,000	38,873,000	208,999,000
Wilson & Co.				
1912	16,813,000	5,145,000	8,200,000	30,158,000
1913	16,759,000	9,844,000	4,986,000	31,589,000
1914	15,787,000	9,300,000	6,652,000	31,739,000
1915	22,294,000	8,689,000	17,034,000	48,017,000
1916	23,945,000	8,099,000	14,514,000	46,558,000
1917	28,383,000	15,000,000	18,207,000	61,590,000
Five packers combined:				
1912	221,436,000	56,783,000	48,269,000	326,488,000
1913	265,109,000	61,016,000	60,566,000	386,691,000
1914	274,231,000	60,020,000	91,944,000	426,195,000
1915	292,886,000	63,969,000	121,414,000	478,269,000
1916	319,590,000	77,418,000	112,198,000	509,206,000
1917	361,489,000	110,685,000	110,696,000	582,870,000

Based on Table 10, Table 11 has been prepared, which shows the rate of "earnings" on total investment.

TABLE 11.—*Rate of "earnings" of the five great packers on total investment, 1912–1917.*

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Five companies.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
1912	7.4	10.2	6.0	5.5	6.6	7.9
1913	7.1	10.1	6.3	2.9	8.0	7.8
1914	7.6	8.9	6.0	11.5	7.7	8.2
1915	8.9	16.4	6.4	8.7	5.3	10.9
1916	14.6	14.6	11.2	14.9	11.2	14.0
1917	[1] 15.9	25.5	17.5	17.5	15.9	19.6
Average, 6 years	10.8	15.2	9.2	11.3	9.5	12.1
Average 3 prewar years, 1912–13–14	7.4	9.7	6.1	6.7	7.5	8.0
Average 3 war years, 1915–16–17	13.3	19.2	11.8	14.0	11.1	15.2

[1] South American business not included.

It appears from this table that rates of earnings on total investment generally increased sharply for all companies during the last two war years. Where the five companies combined were earning 8 per cent on total investment in the prewar years they earned 15.2 per cent or nearly twice as great a rate in the war years, the year 1917 showing a rate of 19.6 per cent, or nearly two and one-half times the prewar average. Swift & Co. leads all other companies in both the average for the war years (19.2 per cent) and in the year 1917 (25.5 per cent).

The following table shows the composition of "net worth" for the beginning of each fiscal period under review.

TABLE 12.—*Net worth (capital and surplus), of the five great packers, 1912–1917, as adjusted by Commission.*

Beginning of fiscal year.	Capital stock.	Surplus or deficit.	Net worth.
Armour & Co.:			
1912	$20,000,000	$56,710,000	$76,710,000
1913	20,000,000	80,195,000	100,195,000
1914	20,000,000	84,223,000	104,223,000
1915	20,000,000	89,733,000	109,733,000
1916	20,000,000	98,733,000	118,733,000
1917	100,000,000	37,335,000	137,335,000
Morris & Co.:			
1912	3,000,000	22,994,000	25,994,000
1913	3,000,000	24,626,000	27,626,000
1914	3,000,000	26,183,000	29,183,000
1915	3,000,000	27,939,000	30,939,000
1916	3,000,000	29,510,000	32,510,000
1917	3,000,000	33,000,000	36,000,000
Cudahy Packing Co.:			
1912	12,000,000	3,919,000	15,919,000
1913	12,000,000	4,529,000	16,529,000
1914	12,000,000	5,038,000	17,038,000
1915	12,000,000	5,920,000	17,920,000
1916	12,000,000	6,529,000	18,529,000
1917	14,000,000	6,956,000	20,956,000
Swift & Co.:			
1912	60,000,000	26,000,000	86,000,000
1913	75,000,000	29,000,000	104,000,000
1914	75,000,000	33,000,000	108,000,000
1915	75,000,000	37,000,000	112,000,000
1916	75,000,000	50,873,000	125,873,000
1917	75,000,000	63,815,000	138,815,000
Wilson & Co, Inc.:			
1912	30,000,000	(1)	16,813,000
1913	30,000,000	(1)	16,759,000
1914	30,000,000	(1)	15,787,000
1915	29,835,000	(1)	22,294,000
1916	29,706,000	(1)	23,945,000
1917	30,133,000	(1)	28,383,000
Five packers combined:			
1912	125,000,000	(1)	221,436,000
1913	140,000,000	(1)	265,109,000
1914	140,000,000	(1)	274,231,000
1915	139,835,000	(1)	292,886,000
1916	139,706,000	(1)	319,590,000
1917	222,133,000	(1)	361,489,000

[1] See footnote 2, Table 5, p. 29.

The Commission, as already explained (see p. 31), has eliminated good will in arriving at Wilson's net worth, in order to bring the company into line with the other companies.

Based on Table 12, Table 13 has been prepared which shows the rate of net profit on net worth. These rates are not altogether pure in that they are based on a net worth or stockholders' equity, after

income and excess profits tax reserves have been deducted, and a net profit taken before such taxes have been deducted, but in so far as this basis closely approximates that of the Treasury Department in determining excess profits, it is felt that it can be used as one significant index of measuring profit.

TABLE 13.—*Rate of net profit of the five great packers on net worth 1912–1917.*

(Loss in Italics.)

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Five companies.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
1912	7.4	10.2	7.0	[2] 3.8	7.1	8.1
1913	6.1	9.1	6.9	[2] *1.6*	8.0	7.0
1914	7.3	8.9	7.6	[2] 12.6	8.2	8.3
1915	10.2	18.5	7.5	11.1	4.0	12.8
1916	19.2	18.0	15.0	22.2	18.9	18.5
1917	[1] 19.8	34.0	22.3	29.3	23.5	26.5
Average, 6 years	12.5	17.5	11.6	14.9	12.2	14.5
Average, 3 prewar years, 1912–13–14	6.9	9.3	7.2	4.8	7.8	7.8
Average, 3 war years, 1915–16–17	16.7	24.1	15.3	21.6	16.0	19.4

[1] South American business not included.
[2] Rate before charging depreciation.

While the great packers were earning 7.8 per cent on net worth in the prewar years, they were earning 19.4 per cent on the average in the three war years, an increase of about two and one-half times. In 1917 they averaged 26.5 per cent, or over three times the prewar average. Swift & Co. again leads with an average in the war years of 24.1 per cent, and in 1917 of 34.0 per cent. Wilson & Co. Inc. is a close second in 1917 with 29.3 per cent. It is interesting to note that while the prewar average of 7.8 per cent is very nearly equal to the prewar average rate of "earnings" on total investment of 8 per cent (Table 11) the war average of net profit on net worth is 19.4 per cent, as against 15.2 per cent for earnings on total investment. The reason for this wide variation is again found in the fact already recorded—that interest charges formed a relatively smaller proportion to total profits in the war years than they did in the prewar years.

TABLE 14.—*Rate of profit of the five great packers (available for dividends and surplus) on net worth, 1912–1917.*

(Loss in italics.)

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Five companies.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
1912	7.4	9.6	7.0	[2] 3.8	7.1	8.0
1913	6.0	8.0	6.9	[2] *1.6*	8.0	6.9
1914	7.2	8.8	7.6	[2] 12.6	8.2	8.2
1915	10.0	17.5	7.5	11.1	4.0	12.3
1916	18.6	15.0	14.4	22.2	18.9	16.9
1917	[1] 15.5	24.9	17.1	23.6	19.0	20.0
Average, 6 years	11.4	14.8	10.5	13.6	11.3	12.8
Average, 3 prewar years, 1912–13–14	6.8	9.0	7.2	4.8	7.8	7.7
Average, 3 war years, 1915–16–17	14.9	19.4	13.2	19.4	14.3	16.8

[1] South American business not included.
[2] Rate before charging depreciation.

In Table 14 is exhibited the rate of the portion of the annual profits actually accruing to the stockholders, on net worth. This method of comparison can not, of course, show the true effect of the war on packers' profits, in that the profit does not include income and excess profits taxes. Had the net profits been less, such taxes would have been relatively reduced and the proportionate share retainable by stockholders increased.

Even on this basis, however, it appears that the war years rewarded stockholders with profits at a rate over twice that obtaining before the war for Armour & Co., Swift & Co., and the Cudahy Packing Co., a little less than twice for Morris & Co., and about four times the prewar average for Wilson & Co.

Thus it appears from a variety of angles that packers' profits have greatly increased during the first three years of the war, and this increase holds true not only in dollars but in rates of return on investment. If the five great companies were making reasonable profits in the three prewar years, 1912, 1913, 1914, it is evident that their war profits for the years 1915, 1916, and 1917, were from two to three times a reasonable return.

CHAPTER III.

THE GREAT PACKERS' ACCOUNTING SYSTEMS AND THE COSTS AND PROFITS OF MEAT.

Section 1. Introductory.

For a number of years the great packers, especially Swift & Co. and Armour & Co., have been giving wide publicity to the statement that their profits on meat, particularly beef, are low. These profits, they say, range from one-eighth to one-half cent per pound of product sold, and such figures are quoted in yearbooks, in letters to Members of Congress, in newspaper advertisements, in congressional hearings; in fact, whenever the packers' profits are under review.

To announce a profit on any given product, such as carcass beef, implies that the cost of that product is accurately known. It ought to follow, therefore, that the packers, in quoting these figures, do maintain a system of accounts which convincingly exhibits carcass costs and other meat-product costs period by period. The Commission has made an intensive study of the packing-house cost systems as a part of its economic inquiry into the industry. The results of these studies show that—

1. There has never been developed an accurate cost system for the meat-packing industry, and the cost theory which the packers use in compiling their figures for specific products and departments does not, and can not, give reliable results.

2. The various methods of determining costs and profits in vogue among the several packers were found to be subject to severe criticism on the score of accounting inconsistency, even if the theory upon which they are based could be assumed sound. The difficulty is further increased by the lack of uniformity which was found to exist between the companies, and accordingly figures of cost and profit as shown by one packer can not be compared satisfactorily with those of another packer.

3. Only a thorough revision of the whole cost accounting procedure can bring about a situation where costs and profits of specific packing-house products will become known quantities, and figures furnished upon which the public, the Government, and the packers themselves can place genuine reliance.

Section 2. The packers' accounting system.

Strictly speaking, each of the great companies has an accounting system which varies from that of the other companies in many important respects, except that all companies follow the same general theory of so-called costs, and all departmentalize their packing-plant accounting to a high degree. It is proposed, in the interests of brevity and clarity, to treat the accounting system as a unit for all companies wherever possible in the following discussion. When such treatment is impossible reference will be made to individual variations.

Primarily it is advisable to relate the present accounting system to the economic functions performed by the packers. These economic functions include:

1. The meat business, including the slaughtering of animals, and the cutting and merchandising of the principal meat products, both fresh and cured.

2. The primary by-product business, including the curing of hides, the boiling and preparation of fats, the disposal of edible offal such as hearts, livers, tripe, etc., and the simple processing of by-products in the form of sausages and canned meats. (Nearly all well-established independent packers carry their processing to this point.)

3. The specialty by-product business, including the manufacture of glue, soap, leather, commercial fertilizer, fiddle strings, glycerin, bone products, serum, mincemeat, pepsin, butterine, and other more intensively manufactured products in which a large part at least of the raw material comes from slaughtered animals. (Few independent packers engage in these businesses at all.)

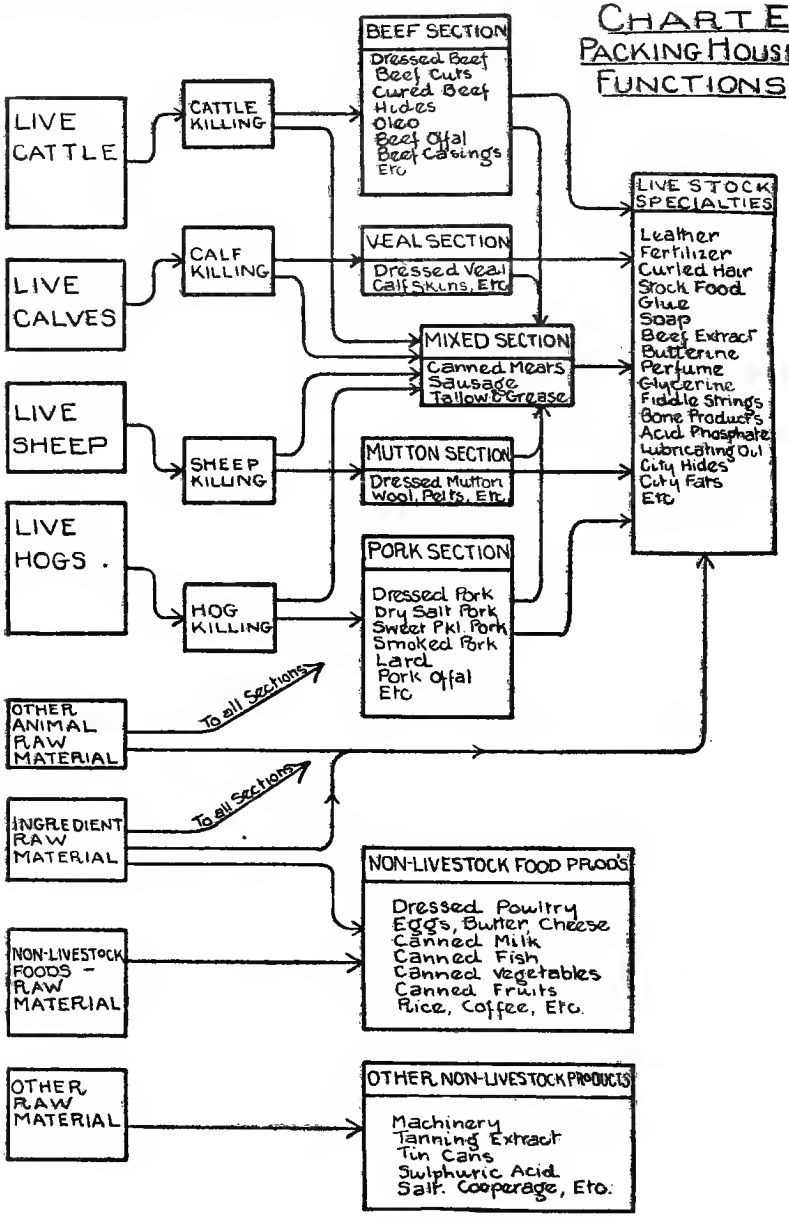
4. Entirely unrelated food business, including the meat-substitute business, covering the production or merchandising of products such as poultry, eggs, cheese, butter, lard substitutes, canned fruits, and vegetables, canned fish, grape juice, rice, and groceries.

5. Services and supplies, including the operation of stockyards, cold-storage plants, feeding stations, car lines, power plants, box factories, tin shops, mechanical supply companies, salt mines, and water companies.

The carcass of a slaughtered steer is sold as dressed beef in class 1; the fats derived from that steer are refined and sold as oleo oil in class 2; some of this oleo oil is, however, transferred to class 3 and there mixed with dairy products and sold as butterine. Chart E has been prepared to show graphically the departments of a packing plant.

In connection therewith, the separation existing between the manufacturing and selling functions of the great packers' business should be noted. The former is represented by packing plants, tanneries,

produce plants, cannery establishments, etc., and the latter by a widely spread net of branch houses, and car routes.



THE PACKING PLANT DEPARTMENT.

To give bookkeeping effect to these varied economic functions, the great packers have all adopted a highly departmentalized system of

accounting. Every packing plant as soon as it grows to a sufficient size is divided for accounting purposes into a number of departments, sometimes as many as 50 or 60. Each of the departments deals with a specific product or group of allied products, such as dressed beef, hides, pickled pork, canned goods, etc. In addition to these so-called "operating" departments, the packing plant is further divided into "nonoperating" or "service" departments, which keep separate account of their inventories, purchases, expenses, etc. These service departments sell no product to the outside world, as a rule, and only furnish the operating departments with supplies and services of one kind or another. (Typical of these service departments are motive-power department, box factory, laundry department, printing department, freezer department, carpenter shop, mechanical department, etc. See p. 51.)

Each department records its own purchases, sales, inventories, and expenses, as well as its transfers to and from other departments, together with services supplied and received, in such a manner that, as a rule, the service departments leave no net balance, neither a loss nor a profit, the component items being distributed on a certain basis to the operating departments. At the end of a given period a profit and loss account of the plant is prepared which shows the net result of each operating department and the balances of such service departments as are not closed out, and a few general items of miscellaneous income and outgo.

Although the packers publish statements concerning them, the total sales, the total purchases, the total classified expenses, of a given plant or of the company as a whole, nowhere appear on the books of account and can only be arrived at by aggregating such items from the departmental records. The Cudahy Packing Co. is the only great packer which prepares an aggregated statement of this kind. (See Exhibit D.)

It is pertinent to inquire what are the functions of the numerous operating and nonoperating departments, and why have the great packers carried their accounting to this highly specialized degree. The independent packer seldom departmentalizes his accounts so intensively. The reason for the difference in accounting method between the two is partly based on the difference in economic function. The independent packer slaughters and cures and does little else. Generally he sells his product either locally or through a broker without the assistance of a car-route or a branch-house system. But the great packer was driven to departmentalization because of the ramified manufacturing processes and varied lines he is engaged in, and because of the novelty of the selling facilities he employs. The great packer, besides producing meats, manufactures or dis-

tributes glue, soap, fertilizer, butterine, poultry, eggs, cheese, groceries, rice, grape juice, etc.

The following table shows the packing-plant departments found on the books of Armour & Co. The operating departments are arranged, where possible, in accordance with their relation to a given kind of animal. Not all the operating departments derive their raw material from one class of animals only, and departments of this character are grouped under the designation of "mixed section." The departments that submit the material derived from the animal to a further processing with a considerable admixture of foreign ingredients, thus carrying it beyond the stage of primary by-products, are grouped under the name of "specialty by-products." The packers also operate departments that have no relation to live stock, and these are grouped under the caption of "nonlive-stock products." The list of operating departments is followed by the enumeration of certain of the service departments.

TABLE 15.—*Packing plant departments grouped by sections.*

(As found on the books of Armour & Co.)

Beef section:
- Cattle slaughtering.
- Dressed beef.
- Hides.
- Oleo.
- Fresh beef cuts.
- Beef casings.
- Beef curing.
- Fresh beef products.
- Dried beef.
- Pickled beef.
- Beef tanks.

Hog section:
- Shipping hogs.
- Packing hogs.
- Dressed hogs.
- Fresh pork cuts.
- Smoked meats.
- Sweet pickled meats.
- Boiled hams.
- Barreled pork.
- Dry salt meats.
- Hog casings.
- Vinegar-pickled pork.
- Hog tanks.

Sheep section:
- Sheep slaughtering.
- Dressed sheep.
- Sheep casings.
- Wool and pelts.

Calf section:
- Calf slaughtering.
- Dressed calves.

Mixed section:
- Canned meats.
- Sausage.
- Butterine.
- Tallow and grease.
- Sterlized meats.

Specialty by-products:
- Animal fertilizer.
- Soap.
- Glue.
- City fats.
- Curled hair.
- Ammonia.
- Serum.
- Pepsin.
- Mincemeat.
- Gut strings.
- Pork and beans.
- Sandpaper.
- Animal oil.
- Beef extract.
- Lard substitutes.

Nonlive-stock products:
- Poultry.
- Butter.
- Eggs.
- Cheese.

Nonlive-stock products—Continued.
- Canned fish.
- Canned vegetables.
- Canned fruits.
- Grape juice.
- Soda-fountain supplies.
- Peanut butter.

Service departments:
- Motive power.
- Cooperage.
- Box.
- Tin.
- Bagging.
- Wagon shop.
- Harness shop.
- Mechanical.
- Laundry.

Service departments—Continued.
- Sewing.
- Stables.
- Automobiles.
- Icing.
- Freezer.
- Railways and yards.
- Street cleaning and crematory.
- Packing and shipping.
- Paper baling.
- Laboratory.
- Printing.
- Restaurant.
- Storeroom.
- Stationery.
- Milling.
- Plant protection, etc.

BRANCH HOUSES AND CAR ROUTES.

A very large part of the products of the big packers are not sold to the outside world at the point where the packing plants are located, but are shipped to branch houses, which make the final sale to the retailer, or are transferred to the various car routes, which sell in towns where no branch house is located.

Dressed carcasses, including dressed beef, veal, mutton, and pork, are shipped to the branch house on two different bases. Armour and Swift ordinarily "consign" their carcasses, without billing, to their selling agencies, the dressed-meat department in the packing plant receiving the final result from the sale after allowing the branch house a commission to cover the estimated expense of selling. Wilson and Cudahy, on the other hand, "sell" dressed carcasses outright to the branch house, the packing-plant department only receiving a credit for the selling price charged to the branch house at the time of shipment. Morris & Co. "consigns" about half of its dressed carcasses and "sells" the other half to its branch houses.

There is some variety in the handling of shipments of products other than carcass meats to the branch houses. These methods may be broadly summarized as follows: Armour, Morris, Wilson, and Cudahy "sell" such products to branch houses. Swift & Co. "sells" the bulk of such products, but "consigns" oleomargarine and dry-salt meats, as well as certain fresh and frozen cuts.

Varying methods are found in the treatment of profits as they appear on the branch-house books. Armour distributes back to packing-plant departments all branch-house profits on the basis of sales value. In 1918 Wilson adopted a similar method.

Swift, Morris, and Cudahy, on the other hand, bring their branch-house profits direct into the final profit and loss account without attempting to allocate them to plants or to departments.

In respect to car-route sales, Wilson, Morris, and Cudahy operate a car-route department to which material from the operating departments is either "consigned" or "sold," the profit or loss on the car-route department being transferred direct to the plant profit or loss account. Armour and Swift have no car-route departments but include all such results in the operating department from which the shipment originates.

TOTAL COMPANY PROFITS.

In order to arrive at the profit or loss for the whole company in a given accounting period, the main office at Chicago picks up the profit for each packing plant (as locally compiled), adds to this aggregate the results from branch houses (when such results have not already been distributed back to individual packing plants), and from other commercial activities which are not conducted in the packing plants (such as the results from tanneries, fisheries, foreign business, etc.), makes certain adjustments for interest, taxes, special reserves, dividends received, and other overhead items only found on the books of the main office, and thus the net final balance for transfer to the surplus account is arrived at. The following table is a condensed statement of the final profit and loss account of Wilson & Co., Inc., for the fiscal year 1917, as found in the main office:

TABLE 16.—*Wilson & Co., Inc., profit and loss account, year ending Dec. 13, 1917.*

	Gains.	Losses.
Packing-plant results:		
Chicago	$3,072,987	
New York		$351,530
Kansas City	542,101	
Subsidiary companies:		
Domestic packing houses	127,948	
Foreign packing houses	3,157,706	
Domestic producing plants	179,669	
Foreign producing plants	60,296	
Merchandise companies	9,818	
Domestic branch houses[1]		1,076,565
Foreign selling companies	282,667	
Car lines	9,710	
Real estate, storage, and investment companies	71,687	
Proportion of profits, affiliated companies	820,143	
Sundry overhead items:		
Discount on preferred stock	2,000	
Dividends received	13,700	
Interest received	6,438	
Interest undistributed		23,827
Other miscellaneous income	7,774	
Sundry reserves		396,150
Commission on bonds		11,250
Balance, profit carried to surplus		6,504,422
Total	8,363,744	8,363,744

[1] In 1918 branch-house profits were allocated back to packing plants.

Section 3. Critical analysis of packers' accounting methods.

THE DEPARTMENT.

Having reviewed broadly the scope of the accounting procedure of the great packers, it is now proposed to subject this procedure to critical analysis. It is evident that the packing-plant department is the foundation upon which the whole accounting framework is based. The department is therefore the logical starting point for analysis.

In general each packing-plant department carries the following seven main accounts:

1. Sales or shipments. (Credit.)
2. Transfers out to other departments. (Credit.)
3. Inventories, end of period. (Credit.)
4. Inventories, beginning of period. (Debit.)
5. Purchases of raw material. (Debit.)
6. Transfers in from other departments. (Debit.)
7. Expenses, including overhead. (Debit.)

Each of these items requires examination, and will be discussed in turn under the corresponding headings.

SALES AND SHIPMENTS (ITEM 1).

There are three chief methods whereby the packing-plant department may dispose of its products. It may sell them direct to the outside trade, it may ship them to branch houses, or it may ship them over company car routes. The packing-plant department sells only a relatively small portion of its products direct to the outside trade, the bulk of the material going to branch houses or over car routes for final disposition.

From the standpoint of sound accounting the packing-plant department should be a unit comprehending both manufacturing and selling costs together with the final sales credit, and thus present the final profit and loss on the products originating therein.

The great packers with the exception of Armour & Co. (which endeavors to bring back all selling results to the packing plant department), do not follow this sound accounting procedure, but in numerous instances exhibit only a part of the profit on a specific product in the originating department, the remainder being shown on the books of the selling agency, and never finding its way back to the department at all.

The disposition of the products of a given department, from the accounting viewpoint, is made by (1) direct sale to the outside trade; (2) intercompany sales to branch houses or car routes or other packing plants; (3) consignments to branch house, car route, or broker. The first transaction is self-explanatory. The second involves the fixing by the department of a billing price based either

on the prevailing market or calculated at what is termed test cost, the latter applying to carcass meats. Consignments are also made chiefly in the case of carcass meats, the department receiving the entire profit on the final sale after allowing the branch house a commission which is only estimated to cover selling expenses, and which the packers claim does not include an element of profit. It is interesting to note, furthermore, that in the case of consignments the great packers adopt the practice of burying the outward freight and estimated branch-house expenses (or commission) on such consignments, so that these expenses nowhere can be identified on either the branch-house books or on the departmental books, with the result that no analysis can be made of the legitimacy of these charges as deducted.

The above explanation of the disposition of departmental products makes it clear that where the department sells direct to the outside trade, or where it consigns products it retains the profit; where it bills to branch houses on the basis of market it retains only a portion of the profit.

Armour & Co. and Wilson & Co., Inc. (since 1918), realizing the shortcomings of departmental profits computed on the above basis, attempt to bring back to the departments all profits made by branch houses. This procedure, of course, renders the billing price at which products were shipped from the packing plant to the branch house theoretically of no effect, as it cancels out when the profit is returned. Armour & Co. also brings back to the department the profit made on car-route sales, but Wilson & Co., Inc., does not, allowing such profit to go directly to the plant profit and loss account.

Swift, Morris, and Cudahy do not bring back their branch-house profits to the department from which the products originated, but credit such profits direct to the final profit and loss account of the whole company. Swift brings back car-route profits to the departments, but Morris and Cudahy credit such profits direct to the plant profit and loss account. Thus it may result, depending upon the method of disposition in use by the five great companies, that the total profit made on any given class of products may rest either in the originating department, in the plant profit and loss account, in the company profit and loss account, or in any combination of these three.

Before leaving this question a word should be said concerning the method whereby Armour & Co. allocates its branch-house profits back to the operating department. The basis of this allocation is sales value. It is obvious that the sales value is not a sound basis for allocating profits between departments, as it is a fact that products with a high selling value may yield a relatively low profit, or vice versa.

When profits are not brought back to departments the billing price placed on the product by the packing plant becomes the final credit to the department account and thus determines to a large extent the departmental profit or loss. By varying the billing price departmental profits are affected and also branch-house profits. It is quite possible under the methods now pursued by the great companies (with the exception of Armour & Co.) to profoundly affect departmental profits by changing the billing price, in that this price is founded upon a more or less obscure "market." An example of the possible effect of billing price on departmental and conversely branch-house profits and losses is found in the 1916 and 1917 statements of Wilson & Co., Inc., as follows:

Total reported profit, 1916	$4,913,872.78
Total reported profit, 1917	6,504,421.76
Domestic branch-house profit, 1916	148,066.96
Domestic branch-house loss, 1917	1,076,564.97

In other words, with a reported profit on the entire business of some $1,500,000 more in 1917 than in 1916, the branch houses are reported to have earned $148,000 in 1916 and lost over a million dollars in 1917. It is difficult to reconcile any such statement with what must have been the underlying facts. The probable reason for the branch house loss in 1917 as against the profit in 1916 would be found in a change of policy covering billing prices and other arrangements between the plants and the branch houses, and not in any lapse of efficiency on the part of the selling organization. Billing prices can be so adjusted as to throw profit into the plants or into the branch houses, as circumstances may dictate. If profits are erroneously thrown into branch houses, they never find their way back to the department at all, thus bringing about an understatement of departmental earnings, unless, as in the case of Wilson in 1918 and Armour, branch-house profits are allocated back to the departments instead of going direct to the company profit and loss account. In the latter case, furthermore, the basis of allocation must be a sound one if accurate departmental profits are to be obtained.

TRANSFERS OUT AND TRANSFERS IN (ITEMS 2 AND 6).

The second item on the departmental list of accounts is "transfers out" and may be considered in connection with "transfers in," item 6. Transfers of raw material from department to department within the plant constitute a large factor in packing plant accounting. From the slaughtering department all products, except carcass meat, are transferred to certain primary by-products or to "specialty" by-product departments. The former includes such departments as hide, offal, lard, and oleo, while the latter includes such departments as soap, fertilizer, glue, and butterine. The primary by-product departments in turn may transfer a great deal of

animal raw material to "specialty" departments. Transfers in and out of storage and freezer also constitute a part of this procedure.

Almost without exception these transfers are based on "market" valuation, not on the actual cost of the items transferred. The effect of such transfer valuation on the departmental accounts is two-fold: First, the compilation of accurate costs is rendered impossible, and second, the final results of any given department are thus based in part on prices that have not been actually realized—prices representing anticipated profits or losses. The departmental account accordingly shows a bookkeeping rather than an actual final result.

Furthermore, on much of the material transferred, such as blood, bones, tankage, glue stock, etc., there is no ascertainable outside market, and the packers must perforce place quite arbitrary valuations on this material having no probable relation to either cost or market. Again certain products are in the green stage when transferred, and an outside market only obtains for the finished stage, with the result that arbitrary deductions must be made from the finished market, estimated to establish a nonexistent "green" market. The certification of internal transfer prices presents, accordingly, an almost interminable problem to any outside reviewing body.

Thus transfer prices not being based on cost, provide a technique whereby profits may be arbitrarily thrown from one department into another in much the same fashion as arbitrary billing prices (based on "market" quotations) for products shipped from plants to branch houses throw the profit from the former to the latter, or vice versa. It is a notable fact, that according to the present method of departmental accounting, the packers are in the habit of showing low profits or even positive losses in the carcass-meat departments, while at the same time exhibiting large profits in the by-products or "specialty" departments, the chief reason for this somewhat extraordinary state of affairs being found in the valuations placed upon transfers. Armour & Co., for instance, in the profitable year of 1917 showed a loss in its dressed-beef department of $3,500,000, while the oleo department showed a profit of $1,248,000. In the same year the dressed-sheep department showed a loss of $798,000 while the wool and pelt department showed a profit of $983,000.

INVENTORIES (ITEMS 3 AND 4).

The third and fourth items on the list of departmental accounts are inventories. These inventories are carefully segregated by departments so far as weights and quantities are concerned, but in the matter of pricing, the vitiating element which pervades the whole accounting system of the industry is again encountered, namely, the lack of accurate costs. For the purpose of profit determination inventories should always be priced at cost (though in

financial statements a reserve may be set up for the difference between cost and market when the latter is less than cost at the date of taking inventory). The following table furnishes a list of the packing plant departments of Armour & Co., together with the bases upon which inventories are priced in each department. It is to be noted that while many of the departments inventory their products on the basis of either actual or estimated cost, those departments which value their products on the basis of market are, generally speaking, the departments which carry the heaviest inventories. It has been estimated that fully 75 per cent by value of the products of a packing house are priced on a market basis for inventory purposes, irrespective of the fact that costs if known might require a different valuation and thus profoundly modify not only departmental profits but total plant profits, and by the same token total company profits as well.

TABLE 17.—*Packing-plant departments and bases of pricing inventories therein.*

ARMOUR & CO.

Name of department.	Basis of valuation.	Name of department.	Basis of valuation.
Dressed beef	Test cost.	Canned meats	Market.
Fresh beef cuts	Market.	Sausage	Estimated cost.
Fresh beef products	Do.	Butterine	Cost.
Beef curing	Do.	Tallow and grease	Market.
Dried beef	Do.	Sterilized meats	Do.
Pickled beef	Do.		
Oleo	Do.	Animal fertilizer	Do.
Beef casings	Do.	Soap	Cost.
Hides	Do.	Glue	Do.
		Curled hair	Do.
Dressed hogs	Test cost.	Ammonia	Do.
Fresh pork cuts	Market.	Pepsin	Do.
Sweet pickled meats	Do.	Gut strings	Estimated cost.
Dry salt meats	Do.	Pork and beans	Cost.
Barrelled pork	Do.	Animal oil	Market.
Vinegar pickled pork	Do.	Beef extract	Estimated cost.
Smoked meats	Do.	Lard substitutes	Cost.
Boiled hams	Do.		
Hog casings	Do.	Poultry	Do.
		Butter	Do.
Dressed sheep	Test cost.	Eggs	Do.
Sheep casings	Market.	Cheese	Do.
Wool and pelts	Do.	Canned fish	Do.
Sheep offal	Do.	Canned vegetables	Do.
		Canned fruits	Do.
Dressed veal	Test cost.	Grape juice	Do.

NOTE.—The word "cost" means cost as determined by the company.

Even on the unreliable basis of market prices for inventory purposes the Commission met serious difficulties when it attempted to review the accuracy of such prices taken by the packers. It was found that for many products no outside market quotations were available, and when available the companies followed the custom of making deductions, allowances, and differentials from that price to cover future processing, carrying charges, freight, etc. These deductions often exceeded a cent in the pound, and not being arrived at according to any uniform method seemed to depend largely upon the conservatism or optimism of the agent who fixed the price.

On November 2, 1918, Swift & Co. priced its cured pork products for inventory purposes at about $100,000,000, this value probably

representing at least 300,000,000 pounds of products. A difference of only 1 cent per pound in fixing inventory prices would thus result in a $3,000,000 difference in reported profits. Thus under the present system of pricing the packers have available a technique whereby reported earnings may be inflated or deflated practically at will without serious possibility of detection. This observation is strengthened by the fact that the market quotations on many products are virtually controlled by the great packers.

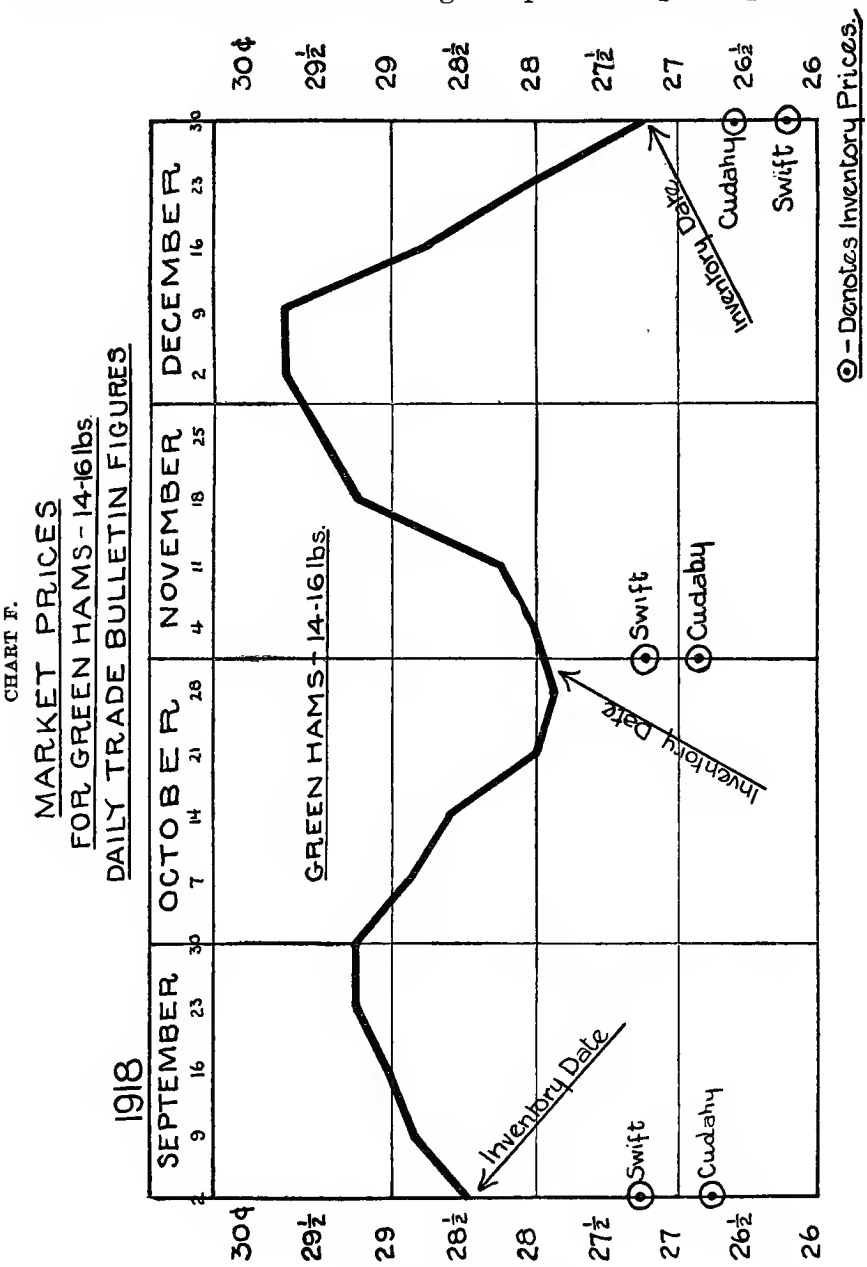
Chart F (see p. 59) gives an idea of how profits may be reduced by inventorying at declining market prices at the end of an accounting period.

This chart shows a valley in the curve on and about November 1, 1918, which is nearly 1½ cents under the peak of October 1, a month earlier, and about 2 cents under the peak of December 1, a month later. It is difficult to see coincidence alone in this market curve, as November 1 had been fixed as the end of the profit-regulation year and consequently the date for taking inventories for the purpose of computing profits. Had the close of the first year of profit regulation fallen either on October 1 or December 1 instead of November 1, and the market curve had been permitted to be the same, the packers would have been expected to price their hams (and if this curve is typical, their other green and cured products as well) from 1½ to 2 cents higher per pound, with the result that their reported profits for the year would have been enormously increased.

Not only are inventories based on market quotations, unreliable from the standpoint of determining accurate costs and profits, but in those plant departments (see Table 17 above) where inventories are said to be based on costs—such as the carcass meat handling departments—it has been found that such costs are not always to be depended upon. The large amounts of raw material transferred from the carcass meat departments to other further processing departments are valued not on a cost but on an assumed market basis, thus nullifying the accuracy of costs accumulated in the former. Conversely this procedure prevents the department receiving raw material transferred from the meat carcass departments from accumulating accurate cost figures, raw material being charged at the outset on the basis of fictitious and arbitrary values.

Again it was found that in the accumulation of so-called costs certain elementary principles of cost accounting have been disre-

garded by the great packers from time to time. For instance, it was found that Armour & Co. in using cost prices for glue department



inventories, employed figures accumulated in 1912, thus reducing the glue department profit for the year 1918 by some $300,000 over what

would have been shown had current cost figures been used. It is also to be noted that 1918 was a year of phenomenal profit taking for manufacturers of glue. The great packers do not always make a clean-cut distinction between manufacturing and selling expense, in erecting their cost formulæ, often including the latter as well as the former. Costs for inventory purposes must not include any part of selling expense.

In short, the packers' inventories, whether on a market or on a cost basis, are not accurately priced in many instances, and accordingly costs and profits are in respect to these instances incorrectly reported. While much might be done to make present methods more amenable to verification, the fact remains that not until a sound cost system is developed for the industry will accurate periodical profits, either for specific products and departments, or for the business as a whole, come to light. The procedure now followed is particularly adaptable to the creation of "hidden reserves," in dealing with which modern accounting needs to be continually vigilant. Prevailing inventory methods offer the packers an opportunity to manipulate reported profits at will, with practically no possibility of verification.

PURCHASES (ITEM 5).

Item 5 on the departmental account is "purchases of raw material." So far as this inquiry developed, this account, except for the minor matter of allocating the expense of the purchasing department, is accurately reported. There is little reason to criticize this item from the standpoint of soundness of principle.

EXPENSES (ITEM 7).

Item 7 and last is expenses, including manufacturing, selling, and overhead (or general administrative). Additional difficulties are here encountered. A large share of the expenses charged against a given packing plant department has to be arbitrarily prorated. The basis of such proration varies widely between the several companies and in many cases can not be considered a sound method for distribution. Wages, certain supplies, certain services, can be charged direct to the packing plant departments and no serious questions need be raised in respect to items of this nature. Refrigeration, power, heat, storage, and all overhead expenses, such as administrative salaries, advertising, the plant's share of the main office expenses, and similar items, must all be distributed to the departments on some arbitrary basis, and if this basis is not a sound one—certain departments being favored against other departments and not bearing their full quota of expense—profits as between departments are rendered unreliable and inaccurate. The following list shows the expenses of a typical department on the books of

Armour & Co. classified according to the nature of the items, whether "direct" or "distributive."

Manufacturing expense:
- Direct—
  - Labor.
  - Repairs.
  - Tools and implements.
  - Manufacturing expense.
  - Storage.
- Distributive—
  - Water.
  - Steam and air.
  - Refrigeration.
  - Light and power.
  - Depreciation, insurance, taxes.
  - Manufacturing interest.
  - Manufacturing sundries.

Selling Expenses:
- Direct—
  - Salaries.
  - Selling expense.
  - Commission.
  - Advertising.
  - Samples.
- Distributive—
  - General administrative.
  - Local administrative.
  - Icing.
  - Cartage.
  - Selling interest.
  - Car-route expense.
  - Selling sundries.

In respect to the so-called distributive expenses it may be stated emphatically that the several great packers have devoted considerable attention to the question of their proper distribution. Each packer has worked out an elaborate series of formulæ, but it is interesting to note that the formulæ are often at variance with each other. The following table exhibits some of the divergencies in method noted:

TABLE 18.—*Basis of distribution of certain indirect expenses of the five great packers (as of April, 1918).*

Item.	Armour.	Swift.	Morris.	Wilson.	Cudahy.
General administrative distributed to plants on basis of—	Sales.	Two-fifths of 1 per cent of sales.	Sales.	Sales, pay roll, and investment.	Sales.
General administrative distributed to departments on basis of—	Sales (produce department scaled down 50 per cent).	Sales (produce department scaled down 50 per cent).	Sales (produce department scaled down 50 per cent).	Salary, pay roll, and investment.	Sales (produce and fish departments scaled down 50 per cent.)
Factory general expense distributed to departments on basis of—	Sales.	Pay roll.	Pay roll.	Pay roll.	Pay roll.
Taxes distributed to departments on basis of—	Buildings and machinery.	Buildings and machinery.	Sales.	Buildings, machinery, and stock.	Buildings, machinery, and stock.
Interest distributed on basis of—	6 per cent on average investment.	8½ per cent on investment.	6 per cent on department investment and expense department investment.	6 per cent on investment except in certain plants.	Actual interest paid.
Selling expense distributed to departments on basis of—	Sales.	Fifteen-one-hundredths of 1 per cent of sales actual distribution.	Direct charge.	Included in administrative expense.	Sales.
Motive power (light, heat, refrigeration, power, etc.).	In each of the five companies, the engineer's department prepares the distribution, but the basis is different in each case.				

It is obvious from the above table, that quite apart from the merits of the method of distribution used in the case of any particular company, the wide variations in method shown as between the several companies tend to raise a serious question over the accuracy of departmental profits as reported by any one company due to the lack of uniformity.

It will be noted from the above table that both general administrative expense and selling expense are distributed to the departments on the basis of sales in most cases. As a result, the well-established meat departments, such as beef, fresh and cured pork, and lamb, in that these departments sell the greater share of the total packing-house product, absorb the greater part of the administrative expense. It is well known that in recent years a very large part of the executive attention of the great packers has been devoted to the development of new lines of business, such as produce, cotton oil, soap, canned fruit, vegetables, etc., the old established lines receiving proportionately less managerial attention. Thus it would seem that a distribution of expenses based solely on sales value would throw a larger burden on the old established meat departments and a lighter burden on the newer activities than the actual facts of the case warrant.

In connection with the distribution of interest, it is the opinion of the Commission that interest is not a legitimate cost of operation and should not be distributed with manufacturing or selling expenses, but should go direct to the final profit and loss account.

In the course of its study of distribution of indirect expenses, the Commission has found that the packing plants as such are bearing an unduly large share of the expenses of the main offices at Chicago as compared to both branch houses and affiliated enterprises managed from Chicago. It is not the packers' custom to distribute to affiliated companies any general administrative expenses, although specific charges for legal services, etc., may be made from time to time. In view of the fact that a great deal of executive attention has been given, particularly in recent years, to the operation of affiliated enterprises, it would seem only reasonable to distribute to these enterprises a certain proportion of the main office general administrative expense, thus reducing the burden on the plant departments.

The above brief survey of the situation in regard to the expense distribution of the great packers shows the necessity of not only bringing about greater uniformity as between the companies, but also in some cases materially changing the basis of distribution before accurate departmental costs and profits can be ascertained.

To summarize, out of the seven principal items that must be reckoned with on every statement of departmental profit or loss, it is seen that six of these items, as at present treated under the packers' accounting system, are subject to marked inaccuracies, and it is clear that underlying methods need to be completely revised before reliance can be placed upon departmental results. The following table shows certain departmental results for Armour & Co. and Swift & Co. for the fiscal year 1917:

TABLE 19.—*Results of selected departments, fiscal year 1917.*

Department.	Armour & Co.		Swift & Co.	
	Profit.	Loss.	Profit.	Loss.
Dressed beef		$3,516,341		$92,745
Hides		501,214		733,259
Oleo	$1,364,186		$119,997	
Fresh beef cuts	362,372		670,810	
Dressed sheep		797,640	6,953	
Wool and pelts	983,014		1,378,391	
Fresh pork cuts		239,074	(1)	
Smoked pork		1,072,162	(1)	
Sweet pickled pork	1,327,100		(1)	
Dry salt pork	3,050,130		(1)	
Boiled hams	213,317		(1)	
Refined lard	501,067		2,368,887	
Kettle-rendered lard		14,142		
Dressed calves	236,098			12,409

[1] Figures not available.

An examination of the above table discloses some surprising variations. While Armour & Co. is recorded as losing $3,500,000 in the dressed-beef department, Swift is shown to be losing only $92,000. While Armour appears to lose $797,000 on dressed sheep, Swift is shown to make a profit of nearly $7,000. The two companies handle not far from the same number of animals in a year, they sell in the same markets, their expenses are similar. No one would expect them to make equal profits or equal losses, but, on the other hand, the variations quoted above are incredible and can only be explained by differences in departmental bookkeeping methods.

Surveying the Armour accounts alone it seems unlikely, to say the least, that while smoked pork is losing over a million dollars, sweet pickled pork is gaining $1,300,000 and dry salt pork is gaining over $3,000,000. Again, it is scarcely credible that besides losing $3,500,000 on dressed beef, Armour & Co. lost $500,000 on hides in the profitable year 1917, meanwhile gaining over $1,200,000 on oleo. In fact, it is impossible to review in series any of the departmental profits of the great companies without realizing that these profits can not be regarded as accurate reflections of the underlying facts but only as arbitrary bookkeeping results. (More departmental figures are given in Exhibit E, where fluctuations may be studied in detail.)

What, it may be asked, is the use of the present departmental system of the packers in so far as live-stock products are concerned, if these departments do not and can not give accurate results? Why do the packers maintain them at all? The answer is not difficult. It is probable that departments are maintained in order to stimulate internal efficiency and in order to give internal comparative figures. The Commission during its inquiry has repeatedly found instances of departmental managers being complimented or the reverse on the month's showing, and a competitive atmosphere is continually stimulated for managers to exceed their former records. Again, even though figures may be compiled according to an unsound method, if the application of that method is consistent a very good view is gained, not of absolute cost and profit, to be sure, but of relative cost and profitableness, period by period. Thus, in a department which normally shows a loss, like the dressed-beef department, the question that interests executives is not the loss itself, which they know to be fictitious, but rather whether or not that loss is decreasing or increasing from one month to the next and what are the reasons for the changes. The departmental method has its very obvious and excellent uses in providing a barometer both of efficiency and variation analogous to statistical index numbers.

The departmental method as heretofore conducted has had its distinct uses to the packer in his relations to the public through the fact that he is enabled to report meat profits at low figures while with respect to by-products it is not profit but efficiency that is displayed for popular approval.

PLANT RESULTS.

Having reviewed the departmental accounting system and established the fact that departmental results are incapable of being accurate under the prevailing methods, it is in order to inquire what effect these methods have on the final profit and loss of a given packing plant. As has already been shown, the packing-plant profit and loss account is largely an aggregation of the final results of each individual department, and accordingly the observations made in analyzing the costs and profits of the departments apply also to the plant profit and loss account, with the exception of such accounts as cancel out when departmental results are thrown together. The apportionment of general plant expense, if inequitably distributed, may destroy the value of a departmental result, but when all departments are aggregated, obviously this item cancels out, and the final profit and loss account of the plant is not affected. Similarly internal transfers of raw material from one department to another when inac-

curately priced undermine the profits of a given department, but such items have no weight when the total plant profit is considered.

In connection with transfers, however, there are many cases when transfer prices do not cancel out in considering the total profits of a given packing plant. Such transfers may be called "external" rather than "internal." When material is transferred from a plant department to another plant or to another subsidiary company (such as a tannery), or when material is transferred to foreign branch houses for sale abroad, obviously the profits of the home plant in total, as well as the department in particular, are affected by the prices placed upon such material. The situation is further complicated by the fact that certain material may be transferred to another subsidiary company and then retransferred to the home plant. Thus hides may be transferred to a tannery and the "fleshings" from those hides retransferred from the tannery to the glue department of the home plant. All such "external" transfers and retransfers so far as they are on a market or arbitrary basis, rather than a cost basis, tend to confuse accurate profit taking on the part of any given plant or subsidiary company.

TOTAL COMPANY PROFITS.

Taking the final step to the contemplation of the profits on the entire business, it is found that the questions of employing a correct basis for pricing transfers, and of allocating general expenses between plants and affiliated companies whose total profits are taken up with those of the main company, cease to be of concern, as those items now cancel out, and the only problems that remain unsolved in the total company results are the proper pricing of inventories, and the distribution of general expense to affiliated companies whose total profits are not taken up on the books of the main company. That the problem of inventory pricing is one of major importance in considering total company results, and that a change in the method of arriving at what is considered a "market" or a "cost" basis, may have a large effect on final company profits, is well illustrated by the fact that Swift & Co. on November 1, 1917, raised its usual basis of inventory pricing in accordance with certain regulations of the United States Food Administration, and thereby threw a profit of some $11,000,000 into the single month of October, 1917, where on the old basis the profit would have been less than half that amount.

In addition to inventories there are certain other items not treated in the departmental analysis which affect total company profits and which require comment at this point. Questions covering these items may be said to arise not from the untenable basis of the accounting system as such, but rather from the faulty manner employed in ag-

gregating certain final results and compiling annual reports thereon. The question of depreciation and its effect on total earnings also requires comment at this juncture. It is the correction of the latter items in line with the requirements of correct accounting principles that form the basis of the Commission's figures of "Adjusted Profits" in section 8, Chapter II of this report. These items are now considered in detail as follows:

INCOME TAXES.

The packers in common with most industrial companies in recent years have followed the custom of reporting to their stockholders a figure termed "net profit," which is really net earnings less provision for income and excess-profits taxes. Such a procedure shows the individual stockholder what proportion of the year's earnings may come to him in the form of dividends, and, if the stockholder is not interested in what the company earns in total, no criticism can be applied to any statement so made. When, however, the packers turn from their stockholders and present these same figures through the medium of newspaper advertisements to the public in general a very different situation is faced. To report "net profits" as Swift & Co. has done for the year 1917 as $34,650,000 when this figure included an arbitrary deduction of $10,000,000 for "general reserve" to cover estimated war income taxes, payable the following year, etc., is to create a serious misconception in the mind of the reader of Swift & Co.'s advertisements. The true profits for the year were at least $44,650,000, or 29 per cent more than the figure reported. The law provides that income taxes shall be paid out of profits as determined, and the larger figure is the only true index of the year's earnings. The following table indicates the difference between book profits and profits as publicly reported by the five great companies for the year 1917:

TABLE 20.—*Net profits as reported, and before deduction of income tax reserves, 1917.*

Company.	Reported profit.	Income tax reserves.	Corrected profit.[1]
Armour & Co.	$21,294,000	$5,635,000	$26,929,000
Swift & Co.	34,650,000	10,000,000	44,650,000
Morris & Co.	5,301,000	1,941,000	7,242,000
Wilson & Co.	6,504,000	1,622,000	8,126,000
Cudahy Packing Co.	4,431,000	1,090,000	5,521,000
Total.	72,180,000	20,288,000	92,468,000

[1] Corrected by income tax adjustment only. For Commission's final corrections, see tables, sec. 8, Chap. II.

Instead of showing their true earnings for the year, a part of which must be turned over to the Government, to be sure, the com-

panies imply in their public statements that they have earned the lesser figure—a misstatement of the facts.

RESERVES.

In addition to reserves for income taxes, the packers are accustomed to charge inventory reserves, "general reserves," and "special reserves" to the earnings of any particular year, decreasing reported profits to that extent. When such reserves are in the nature of surplus reserves, i. e., when they are special deductions not applicable to the income of the year in question, they should not operate to depress profits. Thus the Cudahy Packing Co. in 1916 reduced its earnings from $3,500,000 to $3,000,000 by an inventory reserve, and in the following year charged E. A. Cudahy's salary of $50,000 and a number of other items which had nothing to do with inventories against this reserve.

SURPLUS ADJUSTMENTS CHARGED TO PROFIT AND LOSS.

The great packers have repeatedly debited and sometimes credited the income account of a given year with items which more properly should be applied directly to surplus account, (the latter being defined as accumulated undivided profits and adjustments of former years). Thus Swift & Co. in 1915, the first year of great war profits, charged its profit and loss account with $3,349,000 for shrinkage in the value of stocks and bonds held by the company. Armour & Co. in 1916 charged $1,500,000 to its profit-and-loss account to offset the capitalization of the New York Dressed Beef Co., a subsidiary corporation. In the 1918 profit-and-loss statement of Armour & Co., there are no fewer than 22 items, debit and credit, which are clearly surplus adjustments, and accordingly have no place in a statement of earnings for the year. If the packers desire to show stockholders net additions to surplus instead of actual earnings for a given year, no objection to such a policy can be raised, but the former figure does not represent profits or earnings, and should not be publicly so reported.

DEPRECIATION.

The great packers have not handled the question of depreciation consistently in the past. As depreciation has only been recognized as a legitimate and determinable expense by authorities everywhere for perhaps the last 10 or 15 years, no criticism is attached to the packers' methods prior to that time. The methods of certain of the companies in the last six years are, however, open to criticism. Morris & Co., for instance, in each of the profitable years 1916 and 1917, increased its depreciation reserve by about $2,000,000 where

heretofore the annual increase has been much less than $1,000,000. While it can not be positively said to what extent the company increased its rate of depreciation because of the unknown factor of debits to the depreciation reserve account, nevertheless it is clear that the company has in the good years set aside much greater sums for depreciation than had been the case in the more normal years prior to 1915.

TABLE 21.—*Increases in depreciation reserve account, 1913–1917.*

MORRIS & CO.

End of fiscal year.	Fixed property (less land).	Reserve for depreciation.	Reserve increased by—
1912	$15,263,000	$3,220,000	
1913	17,192,000	3,553,000	$333,000
1914	17,470,000	3,864,000	311,000
1915	18,296,000	4,597,000	733,000
1916	19,052,000	6,605,000	2,008,000
1917	21,134,000	8,642,000	2,037,000

In the case of its car lines, Armour & Co. was found to be figuring a high rate of depreciation after arbitarily writing up the value of its cars some $2,000,000 in 1912. As depreciation should only apply to cost, this procedure operated improperly to depress the profits of the car lines. Swift & Co. has recently (1918) written up the value of its fixed assets by $30,746,000. An officer of the compan gave as one of the reasons therefore that too much depreciation ha been charged off in former years. So far as this statement is tru the profits of such former years have been understated.

Uniformity in depreciation methods is imperative for the gre packers before correct comparisons of profit can be made.

SUBSIDIARY COMPANIES.

Another factor tending to discredit total company profits as r ported is found in the treatment of subsidiary company earning Many instances were discovered in which the packers (with the e ception of the Cudahy Packing Co.) failed to take into the fin profit and loss statement of the controlling company earnings subsidiary companies over the current fiscal period. Swift & C in the year 1916 took up profits from foreign subsidiaries as follow

TABLE 22.—*Foreign results included in profits for 1917.*

SWIFT & CO.

Partial results only taken up:		
Compañía Swift de la Plata		$4,230,736.6
Compañía Swift de la Montevideo		1,173,416.7
New Pategonia Meat & Cold Storage Co.		215,029.9
H. L. Swift Stall (London)	loss	*23,044.3*
Curry & Co. (Ltd.)	do	*438.4*

Dividends taken up:	
Australian Meat Export Co. (Ltd.)	$218,700.00
Swift Beef Co. (Ltd.)	58,320.00
H. A. Lane & Co	43,164.58
Total of above partial results and dividends	5,915,885.18
Complete results taken up:	
Swift Canadian Co. (Ltd.)	1,193,799.31
Other foreign companies—loss	*98,321.86*
Total of complete results	1,095,477.45
Grand total carried to summary	7,011,362.63

Armour & Co. in the case of its cotton-oil mills in Texas did not take up the profits of these companies on the books of the controlling corporation for a period of nearly three years.

Thomas E. Wilson when president of Morris & Co. in 1915, at the time of the proposed merger of the Morris and Sulzberger interests, estimated that in the years 1912, 1913, and 1914, certain of the Morris subsidiary companies, 100 per cent owned by the holding company, had earned on the average $700,000 per year, which earnings had not been incorporated in the reported total earnings of the controlling company.

This single factor of subsidiary company earnings is sufficient to raise a serious question over the accuracy of total profits as heretofore reported by the great packers—with the exception of Cudahy Packing Co.—in any given year. It is also to be remembered that the investment in such companies continues on the parent company's books while the profit on that investment is not shown in some years and again overstated in other years with the consequent disastrous effect on the accuracy of any computations of rates of profit on investment.

DIVORCING SUBSIDIARY COMPANIES.

In connection with the packers' subsidiary companies and their effect on total profits, it should be noted that three at least of the great packers, Armour & Co., Swift & Co., and Morris & Co., have, in the last two years, adopted a new policy in respect to their foreign subsidiaries. Heretofore the stock of these companies has been held by the controlling company, and although foreign profits have not been uniformly taken up, they have, in theory at least, formed a part of the controlling company's earnings. In 1917 Armour & Co. formed a separate corporation for its South American business, the capital stock of which, instead of being held by Armour & Co., is now held by individual stockholders of Armour & Co., thus appar-

ently divorcing foreign interests from the domestic controlling company. Swift & Co. and Morris & Co. followed suit in 1918 in respect to certain of their foreign companies, and Swift & Co. has adopted the same procedure in respect to Libby, McNeill & Libby, its great domestic canning subsidiary.

The results of this policy are obvious. With the same management and the same control continuing to exist, the principal company no longer needs to report the earnings of any subsidiaries so divorced, foreign or otherwise, and accordingly profits of the principal company will tend to be relatively less, although profits of the company system may be greatly increased. Strictly speaking, it is not possible to measure the mutilated earnings of 1917 and 1918 against earnings of prior years when the profits of foreign subsidiaries were included (partially at least) in the final profit and loss account. A comparison of Swift & Co.'s profits for 1918 with those for 1917 force upon the uninitiated reader the conclusion that in 1918 the company had had a relatively poor year. No such conclusion can be drawn, however, until the profits of the recently severed companies are added to those of the principal company and the total compared with former years, for, the legal fiction aside, all of these earnings accrue to substantially the same stockholders. The Commission was not able to secure the profits of the foreign subsidiaries divorced, and accordingly both earnings as reported by the packers and as adjusted by the Commission do not include results from these very profitable South American plants. The best information obtainable places such profits in the case of Armour & Co. alone, for the year 1918, at no less than $10,000,000.

The policy of legally divorcing subsidiary companies while retaining the same direction, raises a further important question as to prices assigned to material and products transferred or "sold" by the main company to companies so divorced. A technique is thus provided whereby profits or losses may be thrown from the main company to divorced subsidiaries or vice versa, according to the prices assigned to these transfers. The final profit of the whole system is unaffected by intercompany transfer prices, as they cancel out from this viewpoint, but so far as reporting the individual profits of either the main company or the divorced companies is concerned, questions of policy may dictate the shifting of profit from the one place to the other.

Section 4. Packers' methods of determining profits per pound and per head.

In section 3 the accounting system of the great packers has been reviewed in some detail. The manner in which the departmental accounts work into the profit and loss account of the packing plant, and the latter into the final profit and loss account of the whole com-

pany; the treatment of branch-house and car-route profits, and of items of miscellaneous income and outgo, and their final disposition in the company profit and loss account have all been subject to analysis, but as yet nothing has been said concerning the profits per head or per pound on beef to which Armour & Co. and Swift & Co. are continually giving publicity. The bookkeeping system, as such, does not automatically produce any figures showing the profit on beef or pork or lamb, per head or per pound. Such figures, either for the purposes of publicity or for private information, have to be compiled outside the books of account, and are in the nature of statistical computations.

Armour & Co. and Swift & Co. have been in the habit for some years past of grouping certain packing-plant departments for the purpose of these statistical surveys into a "beef section," "pork section," "sheep section," etc. The idea lying behind the section grouping is to bring into relation with a given class of animals, such as beef, certain of the profits made on the so-called by-products, so that a computation of profits per head or per pound will include not only the dressed-carcass department results, but also the departmental results shown for hides, fats, casings, etc. By referring to Table 15 the departments which Armour & Co. includes in the various "sections" can be examined. Not only is there a section grouping for each class of animal, but also a so-called "mixed section" as well as the specialty by-products, the former including canned-meat department, sausage department, and so forth; and the latter, soap, fertilizer, etc. The caption "mixed" signifies that the departments included therein handle raw material taken from more than one kind of animal. The canned-meat department, for instance, receives cuts and parts from cattle, hogs, and sheep. Any profits made in a "mixed" department obviously can not be added in toto to the profit of a given kind of animal, but must be divided between those classes of animals which have furnished raw material to the department in question. Thus the canned-meat department profit would have to be spread over all three animals.

Like the departments included in the "mixed section," the raw material entering into the departments of the "specialty by-products" is not obtained from one class of animals and the profits or losses of these departments can not accordingly be related to any given class of animals otherwise than on the basis of apportionment.

In connection with the Borland resolution, introduced into Congress in 1916, Armour & Co. prepared certain statistical figures which purported to show the profit per head of cattle the company made in 1915. The figure presented was $1.19. While the individual figures making up the amount are at present unknown, the method followed

in arriving at them can be shown in detail by employing the departmental figures for the fiscal year 1916, as follows:

TABLE 23.—*Beef profits based on book figures, 1916 (Armour & Co.).*

(Interest eliminated as operating charge.)

Beef department analysis:		
Cost of live animals purchased	$116,075,373	
Outside purchases, green meats, etc	454,655	
Inventory adjustments	*40,050*	
Total raw material	116,489,978	
Beef department expense	3,801,717	
Gross cost		$120,291,695
By-product transfers (at market prices)—		
Hides	18,845,460	
Oleo	4,060,955	
Beef cutting	4,723,628	
All other	4,825,868	
Total transfer credits		32,455,911
Gross cost less transfers		87,835,784
Beef department sales and shipments		86,397,024
Beef department loss		1,438,760
Beef section results brought back:		
Beef section departmental profits[1]		3,156,900
Total "beef section" profit		1,718,140
Number of head sold	1,392,010	
Number of pounds sold (dressed beef)	795,932,339	
Beef section profit per head	$1.23	
Beef section profit per hundredweight of dressed beef	0.22	
Mixed section results brought back:		
Mixed section, estimated proportion of departmental profits allocatable to beef[2]		1,317,708
Total profits on beef as allocated		3,035,848
Total profit per head	$2.18	
Total profit per hundredweight of dressed beef	0.38	

It will be noted that the beef department is first analyzed, the cost of live cattle purchased being shown, together with outside purchases of green meats, inventory adjustments, and killing and dressing expenses. This total ($120,291,695) is then credited with the transfers of all material, except carcass beef, to the hide, oleo and other so-called by-product departments. The transfer value is based on

[1] Includes profits or losses of following departments: Fresh beef cuts, fresh beef products, beef curing, dried beef, pickled beef, oleo, beef casings, and hides.

[2] This allocation is not the company's, but the Commission's estimate based on the company's procedure for the Borland resolution. A portion of the profits or losses of the following "mixed" departments are included: Canned meats, sausage, butterine, tallow, and grease.

prevailing market quotations or other estimates. The net cost of carcass beef (according to this method of finding cost) stands on the beef-department books at $87,835,784. The credits for "sales and shipments" for the year only aggregate $86,397,024, leaving a loss in the beef department of $1,438,760. This loss is of course purely fictitious, and the company could not well give publicity to it, as the final result on beef for the very profitable year of 1916. Accordingly the "beef section" is brought in. The profits on those departments included in the section grouping are used to offset the beef-department loss. These profits aggregate $3,156,900, and thus transfer a beef-department loss of $1,438,760 into a "beef section" profit of $1,718,140, which, by applying the head sold and the pounds sold, gives a section profit per head of $1.23 and per pound of twenty-two one-hundredths cents. Now, if to the "section" profit is added some of the profits of the "mixed" departments, a further increment of $1,317,708 to beef can be estimated, thus raising the profit per head to $2.18 and per pound to thirty-eight one-hundredth cents.

The procedure outlined above can be summarized by stating that in preparing statistical figures of profit per unit—be it per head of cattle or per pound of beef—Armour & Co. aggregates the total net results shown by the departments that are designated as coming under the "beef section" proper, and adds to them a portion of the profits or losses shown by the "mixed section" departments allocatable to beef, but takes no account of the profits found in the "specialty" departments. The same method is also applied if profits per unit for animals other than beef are to be computed.

In general, these observations hold true with equal strength for Swift & Co. (barring some divergencies in the selection of departments as exemplified in the letter shown on p. 77.) Swift & Co. reported profits per head of cattle of $1.65 in 1916, $1.29 in 1917, and $1.02 in 1918.

In its 1918 year book Swift & Co. reports its profit per head of cattle as follows:

		Average per head.
Paid for live cattle		$92.70
Received for meat	$81.45	
Received for by-products	22.06	
Total receipts		103.51
Amount remaining for expense and profit		10.81
Expenses:		
Freight	2.57	
Selling (branch house)	3.70	
Killing, dressing, etc	3.52	
		9.79
Profit (interest not deducted)		1.02

In the light of the foregoing analysis, some of the inaccuracies of this statement are immediately apparent. While the amount paid for live cattle is probably correct, the $81.45 "received for meat" can only be a statistical estimate, for so far as the books are concerned, beef "receipts" are reported net after the deduction of freight and branch-house expenses. Swift & Co. has repeatedly informed the Commission's examiners that it was impossible to segregate these expenses, yet in this table the company has defied its own dictum and estimated such a segregation, increasing the book figure for beef "receipts" by that amount.

The $22.06 per head "received for by-products" is unreliable. To begin with, no such amount has been "received." Though the profits of the "beef section" and certain "mixed-section" departments are included in this figure, these profits do not represent ultimate "receipts." Vast quantities of by-products thrown off from beef in a given accounting period are not disposed of until succeeding periods, and accordingly the final credit to the original beef can not be shown in the same period, with the result that the final credit to the original beef is largely in the nature of an estimated profit.

The profits of no specialty departments handling beef products are included in this figure, but have been arbitrarily cut off by the company in making the computation, and the same holds true of certain large leather contracts. Obviously, profits per head can not be shown until the results of all such specialty beef products are brought back. The $22.06 per head is accordingly seriously understated.

Furthermore, it is an open question whether branch-house profits have been included with departmental results in those instances when departmental profits have been brought back to beef. So far as the books are concerned Swift & Co. does not allocate branch-house profits to the departments, but transfers them in total to the company profit and loss account. It may be that a rough allocation of such profits for statistical purposes has been attempted, but if it has not, it is clear that the $22.06 is again understated. The Commission can state positively that the company was not in the habit of allocating the branch-house profits on its regular accounting records prior to 1918. Finally and most important, the accounting methods obtaining in the departments in respect to inventories and transfer prices, render the profits of these departments as returned for this computation unreliable.

In respect to the $9.79 said to be the expense average per head, it is known that the averages for branch-house expenses ($3.70) and freight ($2.57) included therein, are arbitrary estimates having no relation to the books of account, and as for the balance ($3.52), said to cover killing and dressing expenses, etc., the legitimacy of this item is challenged by the whole question of the proper basis of dis-

tribution of indirect expense to departments (already dwelt upon), as shown by the lack of uniformity between the great packers in treating such expense, the obvious loading of plant expense as against affiliated enterprises, and the loading of the beef department as against other plant departments.

Under these circumstances, the Commission is unable to place the slightest dependence upon the final profit per head ($1.02) as thus announced by Swift & Co.

The Commission has never seen any computations of profits per pound or per head for the other three great packers, Wilson, Morris, or Cudahy, and it is probable that statistics of this nature are not prepared by those companies.

PROFITS PER HEAD.

There are various objections to be raised against this method of computing unit profits per head of cattle as practiced by Armour and Swift. Obviously the first serious objection is found in the essential unreliability of the departmental profits which are taken as the basis of the computations. It has already been noted that no reliability from the standpoint of accurate costs and profits can be placed on the departmental records, and accordingly statistical matter derived from those records can not be depended upon to show accurate results.

Another serious objection is found in the arbitrary selection of what department profits shall be included with beef department in making the computation. If the object is to show profits per head of any given class of animals, it would seem necessary that all profits derived from any part of that animal wherever located, should be included in the aggregate. The packers never attempt to do this, but set an arbitrary limit to the departments whose profits shall go back to beef, leaving the profits of a large number of departments which handle beef products, quite outside the computation. They eliminate for instance profits on soap, glue, leather, commercial fertilizer and many other specialty[1] products manufactured at least in part from cattle, and only include the profits of the so-called primary by-products, comprising the "beef section" and the "mixed section." In other words, in their published figures of profits per head of beef they do not include all the profits made on the beef animal. That such inclusion would entail a very delicate, if not altogether impossible, allocation of a part only of the profits in specialty departments, in no way vitiates the statement that their figures as presented are understated and erroneous.

[1] See "specialty section," Table 15, for list of Armour & Co. departments where profits are not included in "per head" tabulations.

A further difficulty in this connection is found in the fact that Armour and Swift do not agree as to what departmental profits shall be brought back to beef. This may be well illustrated by the following letter from Charles H. Swift:

(Private.)

CHICAGO, *June 23, 1916.*

Messrs. LOUIS F. SWIFT, EDWARD F. SWIFT:

Referring to Henry Veeder's letter June 13th to L. F. S. regarding Borland resolution in which Mr. Meeker is quoted as saying that Armour made a profit of $1.19 per head on cattle for certain period (ours for same period $1.28 per head).

Mr. Chaplin understands that Armour's includes their canners, which ours does not; part of their sausage results, and has 10 cents added per head for good measure for by-products transferred at market prices, which ours does not.

If our and Libby's cattle were thrown together for the period, without including sausage or anything for good measure, it would bring ours up over $2 per head.

Mr. Chaplin didn't think there could be as much difference as this, but checked it pretty close and understands definitely that theirs includes all the above mentioned, which ours does not.

(Signed) CHARLES H. SWIFT.

Thus it appears that for the 1915 computations, Armour included canning cattle profits, part of the sausage profits, and "10 cents for good measure," none of which items were included in Swift's figures. Had they been so included, it appears that a profit of over $2 per head would have been shown for Swift & Co., instead of the $1.28 actually reported.

Again it appears that even when similarly named departments are included by the two companies in their computations it does not always follow that these departments handle identical products or carry on identical processes. It has been found, in fact, that Armour's "beef section" and Swift's "beef section" are not strictly comparable. Armour, for instance, has included, until very recently, the profits from calfskins in its beef section results, while Swift includes them, more accurately, in "veal section," thus keeping them out of beef computations altogether.

PROFITS PER POUND OF BEEF.

The same objections that have been developed in respect to profits per head apply also to profits per pound of beef sold, namely, the unreliabilty of the underlying departmental results involved in such a computation, the arbitrary cutting off of departmental results apportionable to beef, and the lack of uniformity in the manner of

aggregating the departments into sections as between Armour and Swift. Furthermore the procedure of computing profits per pound of beef sold presents additional difficulties that do not attach to the statistics of profits per head of cattle. It will be noted that the profit per hundredweight of beef sold exhibited in Table 23 was arrived at by dividing the profit figure of $3,035,848 by the weight of dressed beef. The unsoundness of this procedure is apparent, in that it involves the dividing of a profit figure which is a composite of a multitude of various products such as hides, oleo, sausage, canned meats, etc., by the quantity of beef. The latter is a product which at no stage of cost figuring as now practiced by the packers was handled as a component of any of the products thus brought back to beef or carcass meat. It is legitimate to relate the aggregate profits of these by-products to the total animal from which they have originated, for the animal as a whole is a common denominator. Beef, however, which is only one part of the total animal, should not receive credit for other animal products, such as hides, casings, etc.

To get at the profit on beef it is necessary to secure the cost of that portion (about 55 per cent of the live animal weight) of the steer which goes into carcass meat. Not until a cost system is evolved whereby there is an initial slaughtering department which kills the animal and transfers the various parts to other departments (such as dressed beef, hides, oleo, etc.), in such a fashion that each department absorbs a proper share of the total live and killing cost, each bearing its proportion of waste and shrinkage, will the packers be enabled to announce with any authority their costs and profits per pound of beef produced.

The departmental cost accounting theory currently followed by the packers is built on the assumption that the carcass meat of the steer is the sole main product and all material thrown off is so much by-product credited to beef on the basis of the prevailing market price, the beef department thus carrying the initial live and killing cost of the whole animal. It is obvious that the live steer is not killed for its meat alone, but also for its hide and fats; as well, in a lesser degree, for its other products. The leather industry is one of the oldest and most important not only in the country but in the world, and the same can be said for cattle fats. Market conditions covering these so-called by-products are important considerations in the mind of the packers' live-stock buyer when he sets the price he is willing to pay per pound for the live animal. To a lesser degree the value of other products such as bones, casings, offal, etc., have their place in fixing this price. The cost of beef can not, accordingly, be assumed to be the cost of the live animal, credited with the returns from all material except carcass meat.

It is manifest that the figures exhibited by the packers covering their departmental costs and profits, as well as their unit profits are valueless in that they do not accurately reflect the underlying facts.

Section 5. Profit on investment.

The impossibility of securing costs and profits by segregating sections of the meat business, on the part of the several great packers under their present accounting methods, has been established. The question next arises as to the use of such segregated figures—such as the profit on beef—could they be accurately determined. As already pointed out in Chapter II even were it possible to secure reliable profits per head or per pound, such figures, while interesting and valuable from certain viewpoints, would have no bearing on the question as to the reasonableness of earnings. Reasonableness turns on the rate of profit on investment, not on profits per unit, and it is thus obvious that whatever the true costs and profits per pound of beef or of pork for the great packers may be—whether a fraction of a cent or several cents—the attempt to make such a profit the sole criterion of reasonableness is wrong and misleading. If a profit of only a cent or two per pound results in an excessively high return on the beef or pork investment, profits on beef or pork are unreasonably large, and no amount of sophistry should be allowed to obscure this fundamental fact. The same reasoning holds true in the rate of profit per dollar of sales, such a return in the rapidly turning business like beef must necessarily appear small. But if it is the equivalent of an excessively high rate on the beef investment, no defense of profits on this ground can be allowed. The rate on investment must always be the deciding factor when the question of reasonableness is under consideration.

Not only has it been found impossible to segregate costs and profits by animals as the books of the great packers are now kept, but also an accurate procedure for segregating investment has never been determined. To secure the beef investment, for instance, it is necessary to arbitrarily apportion to beef that share of the total floor space, machinery, and other fixed assets occupied by the beef departments in the packing plant, as well as to divide the branch house fixed investment over the several classes of animals, beef to receive its proper share. In addition to fixed investment, the problem of allocating the current assets including cash, accounts receivable, accruals, etc., to beef, is necessarily a very complicated one, in that most of these items apply not only to all three kinds of animals, but to all nonlive-stock products as well. For the purposes of the Food Administration the packers attempted a segregation of their investment into three classes, but the Commission after an-

alyzing the methods employed was forced to conclude that no reliance could be placed on an investment so determined.

The question as to what the great packers actually make on beef or other classes of animals, and the further question as to the reasonableness of such earnings can not accordingly be answered at the present time.

In this connection it is interesting to note what some of the independent beef packers earned in 1918. Here a simplified case is presented, the independent beef packer's total investment is devoted to the production of beef, and his total profit is the result of the utilization of that investment. Eighteen independent beef packers in the fiscal year 1918 showed the following aggregated result:

Investment (capital and surplus)	$3,221,782
Net profit (after charging interest)	592,971
Rate of profit on investment—per cent	18.4

Thus it is clear the independent beef packers as a class made a high return on their investment during this year. It would seem reasonable to assume therefore that the great packers, whatever their present bookkeeping results may show, did at least equally well. The contention of Armour & Co. and Swift & Co. that they make little or no money on beef, and only come out whole by virtue of the profits they make on the intensive processing of beef by-products, thus falls to the ground. The independent packers in the above list carry on very little intensive processing of by-products, and if they earn a high return, it stands to reason that the great packers must do likewise, or else the conclusion of operating inefficiency must follow.

Section 6. Section profits under the Food Administration regulation.

The review of the accounting procedure of the packers already outlined should be supplemented by observations of the Commission covering some of the divergencies that existed between the packers in 1918, when they were subject to the reporting provisions of the United States Food Administration. The five great packers were instructed by the Food Administration to group their departments into "sections," and report such section results as aggregated returns, rather than to report individual departmental results. An analysis was made of these sections, and the following divergencies, among others, as between products handled in each by the several packers, were found:

TABLE 24.—*Certain divergencies in definition of "Beef Section."*

Five great packers.

(As of July, 1918.)

Product.	Company.	Included in—
Tongues	Swift	Beef section.
	Wilson	Mixed section.
Oil	Swift	Beef section.
	Cudahy, Wilson	Mixed section.
Dried beef	Armour	Beef section.
	Morris	Mixed section.
Animal fertilizer	Swift	Beef section.
	Wilson	Mixed section.
Tallow	Swift, Morris	Beef section.
	Wilson	Mixed section.
Beef curing	Armour, Wilson	Beef section.
	Morris	Mixed section.
Calfskins	Armour	Beef section.
	Swift	Veal section.

Not only did the packers differ in the names of the departments which they included within their sections, but sharp variations were found in the actual processes included in similarly titled departments. Thus, Wilson & Co., Inc., makes its glue jelly in the bone department, while Armour & Co. makes its jelly in the glue department. Obviously the profits of the two glue departments are not comparable, and Wilson, in including its bone department in the beef section, renders that section a different unit from Armour's beef section. Instances of this kind can be multiplied.

The following table shows variations in section profits for the five packers, as reported under the Food Administration regulations:

TABLE 25.—*Section profits per head of animals slaughtered as reported by packers under United States Food Administration regulations, fiscal year 1918.*

(Losses in italics.)

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Total.
Beef section:						
First period, November-December, 1917	*$0.88*	*$0.42*	*$0.63*	*$3.46*	$0.38	.....
Second period, January-February, 1918	.31	1.35	*4.10*	*2.53*	2.31	.....
Third period, March-April, 1918	.16	1.13	.52	1.29	*.91*	.....
Fourth period, May-June, 1918	*2.50*	*.08*	1.65	2.53	1.67	.....
Fifth period, July-August, 1918	*2.37*	*.07*	1.12	*2.35*	1.10	.....
Sixth period, September-October, 1918	.18	3.05	3.47	2.43	2.84	.....
Hog section:						
First period, November-December, 1917	*.51*	.20	*.10*	.47	.36	.....
Second period, January-February, 1918	3.18	3.95	2.18	3.09	2.46	.....
Third period, March-April, 1918	1.29	1.69	2.30	2.63	2.36	.....
Fourth period, May-June, 1918	.33	.14	.95	.91	1.92	.....
Fifth period, July-August, 1918	2.66	2.45	1.08	1.12	2.51	.....
Sixth period, September-October, 1918	.64	1.39	*.05*	.53	.83	.....
Totals for year:						
Beef section	*.72*	.98	.54	*.79*	.83	$0.22
Hog section	1.27	1.82	1.17	1.67	1.87	1.56
Sheep section	.08	*.02*	*.11*	*.06*	.11	.01
Calf section	*.07*	.....	.17	*.48*	.31	*.02*
All sections, including mixed	.81	1.21	1.07	1.50	1.35	1.14

In the beef section for the first period, as the foregoing table exhibits, Cudahy makes a profit of 38 cents per head, while Wilson shows a loss of $2.46 per head. In the second period Cudahy makes $2.31, while Morris loses $4.10. In the last period, while Swift makes $3.05, Armour makes only 18 cents. The whole section is full of like incredible items. The hog section is less striking in this regard, but Cudahy's fourth-period profit of $1.92 against Swift's profit of only 14 cents is to be noted. In the totals for the year, Armour and Wilson appear to lose about as much on beef as the other three packers make.

No better evidence of the inadequacy and inaccuracy of the present departmental and section results of the great packers could be presented than the above table furnishes. To expect reliable profits per head or per pound of a given class of animals, based on an accounting foundation which produces such fantastic divergencies between the several companies, is manifestly to expect the impossible.

Section 7. Uniform accounting.

At the instance of the United States Food Administration, the Commission studied the accounting methods of the great packers with a view to developing more uniformity in order to facilitate the examination and comparison of the reports made to the Food Administration.

The final success of any such uniform system turns upon the development of accurate cost finding for live-stock products, whereby the cost of the live animal may be allocated, transfers between departments valued, and inventories priced.

Such allocation of costs may be to the departments on the basis of weight, or on any other sound and practicable basis. In any case total live costs should be absorbed, and the departments should start their accounting careers on such definite cost bases, uninfluenced by current market fluctuations.

After developing a cost system, the remaining problems of uniform accounting, while difficult, would be by no means beyond solution. Some steps have already been taken in this direction. A complete program would include:

1. A uniform system for distributing indirect expense, first to plants, branch houses and other enterprises, and then to departments within a plant.

2. A uniform method of billing plant products to branch houses, and a system of allocating branch-house and car-route profits back to packing plant departments.

3. A uniform definition of the processes and products to be included in a specified animal section (such as the pork section), and

ultimately a uniform definition of the departments within the sections.

4. Uniform principles to be laid down for carrying fixed assets at cost, and charging depreciation thereon.

5. Uniform fiscal years and intermediate accounting periods.

6. A uniform classification of asset, liability, income and outgo accounts, with specific rules as to what classes of subsidiary companies should be "spread" with the controlling company in making consolidated statements. All subsidiary company profits should be picked up before an annual statement of total company profits is presented.

In due time a uniform system for the packing industry along the more important, at least, of the above lines may be developed. But until this is done, either by the Government or by the packers themselves with the approval of the Government, the profits of the packers' business, both in total and in part, as reported by them, compiled according to their present accounting methods, can not be accepted as reliable or as consistently reflecting the underlying facts.

CHAPTER IV.

THE PROFITS OF THE "INDEPENDENT" PACKERS.

Section 1. Introductory.

The Commission has made a study of the profits of the "independent" packers for the fiscal year 1918, based on reports rendered by packers with sales over $500,000 and less than $100,000,000, under profit regulation by the United States Food Administration. One hundred and seventeen companies have been included in the following tabulations with annual businesses ranging from $520,000 to $63,811,000. While the total number of this class of packers under regulation by the Food Administration exceeded 200, it was found that many of the reports were incomplete, and that included in this total were a number of companies under the control of the five great packers. When the reports of controlled companies and those making inadequate reports were eliminated, 117 remained suitable for tabulation. These companies have been classified for the purposes of comparative study according to (1) the nature of their business, i. e., whether they are primarily pork packers, beef packers, or mixed packers; (2) size, based on sales; (3) status in respect to receiving Government allotments for products; (4) rate of earnings on net worth (capital stock and surplus). In addition a study has been made of the ratio of total expense to sales as between the various groups.

Figures are also presented covering the net worth and profit of 65 independent packers for the years 1914, 1915, and 1916. These figures were compiled from schedules rendered by all independent companies to the Commission under the requirements of a questionnaire in the fall of 1917. Over 200 companies submitted returns, but only 65 of these were sufficiently complete to be acceptable for tabulating purposes.

Finally the reports of the five great packers under the provisions of the Food Administration profit regulation have been aggregated and a comparison made of the profitableness of the great packers with the independents for the year 1918.

In accordance with most of the other figures dealing with packers' profits these tabulations can not be regarded as conclusive, due to the lack of uniform methods in accounting heretofore pursued by the companies. The Federal Trade Commission's representatives have made no audit of the books of these companies, but have simply accepted the figures on the reports as returned, after eliminating such reports as appeared on their face to be inaccurate. Many companies did not prepare even simple balance sheets and profit-and-loss statements; methods of charging off depreciation were found to vary widely and to be calculated on erroneous bases; "net profit" did not have the same meaning for all companies: and in general it may be said that the reports indicated a decided indifference to the fundamental principles and methods of accounting on the part of many of the "independent" packers. Until accounting methods are improved figures collected by the Government or by any other agency can not always be taken as accurate, but only as a broad indication of the underlying financial facts. Furthermore, until substantially uniform methods of accounting are used it will be impracticable to make satisfactory comparisons of the results of different companies.

Finally it should be remembered that 1918 was an abnormal year, first because of the war, and second because packers' profits were subject to regulation, and accordingly any deduction drawn from the profits of the year can not be regarded as conclusive with respect to other years and other conditions except in so far as the 1914–1916 figures bear them out. It is also to be noted that in 1918 certain of the independent packers received Government allotments at fixed prices for their products, while others did not.

Section 2. Effect of character of business on profits.

The 117 "independent" packers, whose 1918 reports were used, were classified according to the character of their businesses. Almost every packer on the list is primarily concerned with live-stock products. Eighty-seven of the 117 companies reported no other business whatsoever, and of the 30 remaining, only 6 reported a more than 10 per cent (sales value) business in produce, oleomargarine, ice manufacturing, or other outside activity. Two companies reported that about one-half of their business is in produce and lard compound. Thus it may be stated that the business of the "independent" packer is primarily meat packing, and he has not branched out into other lines of food products, as have the five great companies. Furthermore, not over a dozen of the small packers report that they maintain selling or branch houses, and only a few operate car lines. Strictly speaking, therefore, the businesses of

the large and the small packers are not exactly comparable, because of this difference of functions.

Of the 117 companies, 70 are here designated as pork packers, 18 as beef packers, and 29 as "mixed packers." The classification is based on the cost to the packer of live animals purchased; if over 70 per cent of such cost is expended for the purchase of hogs, that packer is designated as a pork packer; if over 70 per cent for cattle and calves, as a beef packer; if under 70 per cent for any kind of animal, as a mixed packer. Only three companies reported a 70 per cent or higher proportion for sheep, and accordingly it did not seem expedient to establish a "mutton packer" classification, and these three companies were included with the mixed packers.

TABLE 26.—*Profits of independent packers classified according to character of business, fiscal year 1918.*

	Number of companies.	Sales.	Net worth.[1]	Net profit.	Rate of profit.	
					On net worth.	On sales.
					Per cent.	*Per cent.*
Pork packers	70	$564,141,415	$73,416,390	$13,299,778	18.1	2.4
Beef packers	18	27,417,535	3,221,782	592,971	18.4	2.2
Mixed packers	29	134,195,199	12,584,776	2,234,939	17.8	1.7
Grand total	117	725,754,149	89,222,948	16,127,688	18.1	2.2

[1] End of first accounting period.

"Net profit," as given above is after deduction of all interest charges, but not excess profits or income taxes, or donations to war charities. Net worth (or capital and surplus), as already explained in Chapter II, represents the stockholders' or partners' equity in the business, and a rate of profit on net worth is a reasonable index of comparative profitableness. It is interesting to note that the 117 packers as a group, earning only 2.2 per cent on sales, made an average rate of return on net worth of 18.1 per cent.

Pork packing is the main concern of the independent packers taken as a whole. Of the 725 millions of sales reported for the 117 companies, those classed as pork packers had 564 millions, or 78 per cent.

There was not much difference in the rate of profit on net worth for these three groups of packers. While the rate was highest for the beef packers their business was comparatively small.

Section 3. Effect of size on profits.

The following table reclassifies the 117 packers, according to the size of their businesses, reflected in terms of gross sales. No distinction is made as between pork, beef, or mixed packers in this tabulation.

TABLE 27.—*Profits of independent packers classified according to size of business, fiscal year 1918.*

	Number of companies.	Sales.	Net worth.	Net profit.	Rate of profit.	
					On net worth.	On Sales.
					Per cent.	*Per cent.*
Group I. Over 25 millions	6	$281,859,401	$37,204,313	$7,167,862	19.3	2.5
Group II. 10 millions and less than 25 millions	11	191,307,172	16,968,566	4,008,152	23.6	2.1
Group III. 5 millions and less than 10 millions	11	72,393,462	10,095,750	1,380,839	13.7	1.9
Group IV. 2 millions and less than 5 millions	34	111,997,377	14,385,574	2,286,868	15.9	2.0
Group V. Under 2 millions	55	68,196,737	10,568,745	1,283,967	12.1	1.9
Grand total	117	725,754,149	89,222,948	16,127,688	18.1	2.2
Groups I and II combined	17	473,166,573	54,172,879	11,176,014	20.6	2.4
Groups III, IV, and V combined	100	252,587,576	35,050,069	4,951,674	14.1	1.7
Grand total	117	725,754,149	89,222,948	16,127,688	18.1	2.2

It appears that the most profitable group of small packers, measured in terms of rate on net worth, are those whose sales lie between 10 and 25 million dollars. The 11 companies in this group earned 23.6 per cent as against 19.3 per cent for the 6 largest companies in Group I. These medium-sized companies are probably the most advantageously situated of all the groups, as their plants are large enough to efficiently utilize by-products, where the smaller packer has to throw them into tankage, and yet not so large as to compete extensively with the five great packers in establishing a branch-house system, as do the Group I packers.

Under 10 millions the rate of profitableness drops rapidly, the lowest rate (12.1 per cent) obtaining for Group V, or packers with sales of less than 2 millions per year. When Groups III, IV, and V are combined, as against the combination of Groups I and II, it is seen that the 17 packers with sales of more than 10 millions did almost twice the business of the 100 packers with sales of less than 10 millions, and earned a much higher rate on net worth—20.6 per cent as against 14.1 per cent. The effect of size on profitableness is clear enough, but the fact that Group I made less than Group II might indicate that there was a very definite limit of size over which it may not be profitable for an "independent" packer to go.

The following table gives the size groups for pork, beef, and mixed packers. It is to be noted that beef packers are only found in Groups IV and V. There is no large beef packer on the list. The three beef packers in Group IV made a very large average profit—31.9 per cent on net worth, but this is not due probably to any general condition. The three mixed packers in Group II also made a high average rate of profit—30.9 per cent on net worth, and the same comment may well apply to them. The number of companies is too small in both cases to admit of any general conclusions. Group III for both pork

and mixed packers shows a relatively low average rate of earnings, as does Group V for pork, beef, and mixed packers. Broadly speaking, this table bears out the conclusion already arrived at that the larger "independents" are more profitable than the smaller companies.

TABLE 28.—*Profits of independent packers classified according to character of business and to size, fiscal year 1918.*

	Number of companies.	Sales.	Net worth.	Net profit.	Rate of profit.	
					On net worth.	On sales.
PORK PACKERS.					*Per cent.*	*Per cent.*
Group I. Over 25 millions	6	$281,859,401	$37,204,313	$7,167,862	19.3	2.5
Group II. 10 millions and less than 25 millions	8	127,482,681	13,987,854	3,085,852	22.1	2.4
Group III. 5 millions and less than 10 millions	9	59,080,678	8,486,675	1,157,183	13.6	2.0
Group IV. 2 millions and less than 5 millions	18	58,427,454	7,532,761	1,172,789	15.6	2.0
Group V. Under 2 millions	29	37,291,201	6,204,787	716,092	11.5	1.9
Total pork packers	70	564,141,415	73,416,390	13,299,778	18.1	2.4
BEEF PACKERS.						
Group IV. 2 millions and less than 5 millions	3	9,348,944	850,381	270,888	31.9	2.9
Group V. Under 2 millions	15	18,068,591	2,371,401	322,083	13.6	1.8
Total beef packers	18	27,417,535	3,221,782	592,971	18.4	2.2
MIXED PACKERS.						
Group II. 10 millions and less than 25 millions	3	63,824,491	2,980,712	922,300	30.9	1.4
Group III. 5 millions and less than 10 millions	2	13,312,784	1,609,075	223,656	13.9	1.7
Group IV. 2 millions and less than 5 millions	13	44,220,979	6,002,432	843,191	14.0	1.9
Group V. Under 2 millions	11	12,836,945	1,992,557	245,792	12.3	1.9
Total mixed packers	29	134,195,199	12,584,776	2,234,939	17.8	1.7

Section 4. Effect of Government allotments on profits.

The following table compares the profitableness of the 34 independent packers who received Government allotments for their products, with the 83 packers who did not. Almost without exception, the "allotment packers" were the larger companies, but whether their greater profitableness was partly due to the allotment prices is an open question.

TABLE 29.—*Profits of independent packers classified according to Government allotments, fiscal year 1918.*

	Number of companies.	Sales.	Net worth.	Net profit.	Rate of profit.	
					On net worth.	On sales.
					Per cent.	*Per cent.*
Government allotment packers	34	$543,079,251	$63,822,873	$12,294,318	19.3	2.3
Nonallotment packers	83	182,674,898	25,400,075	3,833,370	15.1	2.1
Grand total	117	725,754,149	89,222,948	16,127,688	18.1	2.2

Section 5. Rate of profit on net worth.

The following table classifies the 117 independent packers on the basis of rate of profit on net worth (capital and surplus), no distinction being drawn between character of business or size of business.

TABLE 30.—*Profits of independent packers classified according to rate of profit on net worth, fiscal year 1918.*

Rate on net worth.	Number of companies.	Total sales.
Over 50 per cent	6	$36,033,426
25 and less than 50 per cent	19	211,669,962
20 and less than 25 per cent	14	39,984,092
15 and less than 20 per cent	18	141,965,440
10 and less than 15 per cent	29	237,655,135
Less than 10 per cent	24	41,912,657
Actual losses	7	16,533,437
Total	117	725,754,149

Thus six packers earned over 50 per cent on net worth, 19 from 25 to 50 per cent, 14 from 20 to 25 per cent, 18 from 15 to 20 per cent, or 57 packers earned 15 per cent or better, while 60 packers earned less than 15 per cent. The 57 packers earning 15 per cent or better had aggregate sales of $429,652,000 or about 59 per cent of the total sales of all packers in this tabulation.

In the group earning better than 50 per cent on net worth were found three pork packers, one beef packer, and two mixed packers. The largest company in this group reported sales of nearly 19 millions, and the smallest sales of only $520,000. In the 19 packers in the group earning from 25 to 50 per cent, the pork packers predominated, but cattle and mixed packers were also found. The sales in this group ranged from $763,000 for the smallest company to $43,000,000 for the largest. No company with sales of over $7,000,000 was found in any of the groups earning 10 per cent or less. In the absolute loss group was found one company with sales of $6,280,000 and two companies with sales of over 3 millions. The greatest number of companies (29) was found in the group earning from 10 to 15 per cent. Broadly speaking, this tabulation shows that the big companies are largely in the higher-earning groups, but they by no means monopolize these groups, as the smallest company in the entire list, with sales of $520,000, is included in the highest group of all (over 50 per cent). It is significant, however, that no one of the 17 packers with sales of $10,000,000 or more earned less than 10 per cent on net worth.

Section 6. Profits of independent packers in former years.

Turning now to the profits of 65 independent packers as reported for the years 1913, 1914, and 1915, the following summary table has been prepared:

TABLE 31.—*Profits of independent packers, 1914–1916.*

Year.	Net worth.	Net profit.	Rate of profit on net worth.
			Per cent.
1914	$39,823,000	$5,018,000	12.6
1915	44,934,000	5,875,000	13.1
1916	50,655,000	11,215,000	22.1
Average, 3 years	45,137,000	7,369,000	16.3

One hundred and seventeen independent packers in 1918 averaged 18.1 per cent profit on net worth, while from the above table it appears that 65 independent packers averaged 12.6 per cent in 1914 (a prewar year), 13.1 per cent in 1915 (the first war year), and 22.1 per cent in 1916 (the second war year), the combined average for the three years being 16.3 per cent. As figures of annual sales were not returned (except in certain cases) for the 65 packers tabulated, no size groups comparable with the 1918 size groups can be compiled. The fact that 1916 was a more profitable year for 65 packers, than 1918 was for 117 packers may be explained in one of two ways; either the 65 packers reporting were larger and more profitable companies as a class than the 117 packers reporting in 1918, or possibly the United States Food Administration regulation in 1918, actually retarded the profits of independent packers as a class under what was being earned in 1916. According to any interpretation and after allowing wide margins for inaccurate reports, extraordinary conditions, etc., it is clear that since 1915, the average profits of the independent packers measured in terms of rate on net worth have been high.

Section 7. Expense of independent packers.

It was found impracticable to aggregate the expense accounts of all the 117 independent packers in 1918, due to the lack of uniformity in the returns. A selected list of 32 independent companies was prepared, however, for this purpose, these companies having rendered accounts that appeared to be reliable. The aggregate sales of the 32 companies selected amounted to $339,988,000, or nearly one-half the aggregate sales of the whole list of 117 companies, namely, $725,754,000. In the reports rendered, expenses were classified into manufacturing (exclusive of raw material), selling, and administrative, and this division is indicated in the lower part of the following table, but it is doubtful if as much reliance can be placed upon the classified expense as upon the total expense.

TABLE 32.—*Independent packers' sales, expenses, and profits, fiscal year 1918.*

Item.	Number of companies.	Sales.	Expense.	Per cent of expense to sales.	Net profit.	Per cent of profit to sales.
Pork packers	18	$262,606,958	$30,616,266	11.7	$7,264,156	2.8
Other packers	14	77,381,200	7,452,029	9.6	1,403,055	1.8
Total	32	339,988,158	38,068,295	11.2	8,667,211	2.5

CLASSIFIED EXPENSES.

Item.	Manufacturing.[1]		Selling.		Administrative.		Total.	
	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
18 pork packers	$17,121,661	59.8	$9,307,599	32.2	$2,302,869	8.0	$28,732,129	100.0
14 other packers	3,953,168	57.5	2,247,272	32.7	668,576	9.8	6,869,016	100.0
Total, 32 packers	21,074,829	59.2	11,554,871	32.5	2,971,445	8.3	[2] 35,601,245	100.0

[1] Includes all manufacturing costs above materials.

[2] Difference between this total and $38,068,295 listed above, due to exclusion of interest in lower table.

Thus it appears that for the 32 companies tabulated, 11.2 per cent of gross sales was paid out in the form of expenses of every kind, including interest, 2.5 per cent of gross sales were returned as profit, leaving roughly 86 per cent of sales as the measure of the cost of live stock and other raw materials manufactured and sold during the year. This last percentage is only approximate, as it would have to be adjusted with "income other than sales" to make it exact. But as other income is largely a negligible quantity with the small packers, the percentage as given is substantially correct.

The 18 pork packers show an expense percentage on sales of 11.7 while the 14 other packers (including 4 beef and 10 mixed packers) show a percentage of only 9.6. This difference is undoubtedly explained by the fact that the pork packers, in that they sell less of their product fresh but rather cure it and process it, are put to considerably more expense per dollar of sales than are the other packers who sell beef and mutton fresh and operate on a more rapid turnover.

Few figures are available whereby the expenses of the independent packers may be compared with those of the five great packers. As has already been pointed out, the great packers do a different sort of business than the independents, processing their by-products to a much greater extent and also dealing heavily in non-livestock products. The Cudahy Packing Co. is the only great packer that attempts to aggregate its total expenses for the year. The other companies aggregate expense by departments, sometimes by plants, but do not aggregate them for the whole company. The Cudahy figures, exclusive of raw material, for 1914 through 1917 are as follows:

TABLE 33.—*Expense of 32 independent packers compared with expense of the Cudahy Packing Co.*

	Gross sales.	Total expense.	Per cent.
32 independent packers, 1918	$339,988,158	$38,068,295	11.2
Cudahy Packing Co., 1917[1]	184,811,423	28,351,580	15.3
Cudahy Packing Co., 1916	133,960,986	22,137,583	16.5
Cudahy Packing Co., 1915	116,162,156	22,454,538	19.3
Cudahy Packing Co., 1914	109,121,441	19,557,798	17.9

[1] See Exhibit D for detail of Cudahy expenses.

It is to be expected that the ratio of expense to sales will be greater in the case of the big five packers than in the case of the independent packer, because the former processes his by-products more extensively and as a result secures a higher average selling price. The ratio of his raw material cost to selling price will therefore be lower and his ratio of expense to selling price higher than in the case of the independent packer, supposing that both make about the same ratio of profit to selling price. Whether the considerably greater ratio of expense shown by the Cudahy Co. on the above table can all be accounted for on this basis of reasoning is an open question.

Section 8. Comparison of the profits of the great packers and of the independents.

Under the United States Food Administration profit regulation, the five great packers reported the following profits for the fiscal year 1918:

TABLE 34.—*Five great packers' sales and profits, as reported to Food Administration, less interest on borrowed money, fiscal year 1918.*

	Sales.	Net worth.[1]	Net profit.	Per cent of profit on—	
				Net worth.	Sales.
Armour & Co.	$842,143,264	$165,391,448	$19,396,753	11.7	2.3
Swift & Co.	1,390,882,039	204,799,823	36,507,487	17.8	2.6
Morris & Co.	407,947,458	47,832,048	3,982,246	8.3	1.0
Wilson & Co., Inc.	326,931,016	35,473,370	6,362,184	17.9	1.9
Cudahy Packing Co.	286,660,971	29,364,883	6,031,680	20.5	2.1
Total, Big Five	3,254,564,748	482,861,572	[2]72,280,350	15.0	2.2

[1] Beginning of fiscal year.
[2] This figure will not agree with 1918 profits shown in Chapter II because the latter is taken from published reports of packers.

These sales and profits represent not only the live-stock business, (which was subject to a 9 per cent limit on the total investment, including borrowed money in that business), but all other activities of the companies as well. No extensive attempt has been made to

audit these reports, and the Commission can not vouch for their correctness. In compiling them the packers were asked to exclude from the expense account income and excess profit taxes, war donations, and publicity expense. Net profit as shown in the above table is after interest has been deducted as an expense. The definition of "net profit" is accordingly the same for these companies and for the 117 independent packers whose accounts have been reviewed. A grave doubt is thrown around the net profits here shown in the case of at least three companies—Armour, Morris, and Wilson. It seems incredible that Morris & Co. having always kept step in the past with the average profitableness of the "Big Five," and sharing in 1918, its full quota of Government allotments, should only make a net profit of 8.3 per cent on its net worth and 1 per cent on its sales, while Wilson and Cudahy were obtaining better than twice these rates of profit.

Only less noteworthy is the case of Armour & Co., as compared to Swift & Co. A profit of 11.7 per cent on net worth for Armour, while Swift was earning 17.8 per cent and still keeping below the limit of profit regulation is hardly credible in view of the past performances of these two great companies.

In short, an intensive analysis of the reports of the great packers might bring to light a considerable increase in the total reported profit—an increase that might raise considerably the percentage on net worth. In comparing the great packers with the "independents" in the following tables, therefore the profits and rates of profits exhibited for the former should be regarded in the nature of minima.

TABLE 35.—*Comparison of profits—five great packers and 117 independent packers, fiscal year 1918.*

	Number of companies.	Sales.	Net worth.	Net profit.	Rate of profit.	
					On net worth.	On sales.
Total Big Five	5	$3,254,564,748	$482,861,572	[1] $72,280,350	*Per cent.* 15.0	*Per cent.* 2.2
Independent packers over 25 millions	6	281,859,401	37,204,313	7,167,862	19.3	2.5
Independent packers, 10 millions and less than 25 millions	11	191,307,172	16,968,566	4,008,152	23.6	2.1
Independent packers under 10 millions	100	252,587,576	35,050,069	4,951,674	14.1	2.0
Total, independent packers	117	725,754,149	89,222,948	16,127,688	18.1	2.2

[1] This figure will not agree with 1918 profits shown in Chapter II because the latter is taken from published reports of packers.

Thus if the rate of profit on net worth for the great packers actually was 15 per cent in 1918, it appears that it was considerably less

than the average profit of the 17 independent packers with sales of over 10 million dollars, and only a little more than the average profit of the 100 independent packers with sales of less than 10 million dollars.

It is interesting to note in passing that the total sales of the 117 independent companies listed only aggregated 725 millions, as against 842 millions for Armour & Co. alone, and 3,254 millions for the Big Five combined, or only 22 per cent of the latter figure. When it is remembered that the list contains practically all of the larger "independents," the relative importance of the "independent" packers as a class is readily seen.

Turning now to a comparison on the basis of the actual number of independent companies earning 15 per cent or better, some of the figures shown in Section 5 are given, as follows:

TABLE 36.—*Independent packers' rates of profit on net worth by groups, fiscal year 1918.*

Rate on net worth.	Number of companies.	Total sales.	Per cent sales in each group.
Over 20 per cent	39	$287,687,480	39.6
15 and less than 20 per cent	18	141,965,440	19.6
Under 15 per cent	60	296,101,229	40.8
Total independents	117	725,754,149	100.0

Fifty-seven "independent" companies, with sales aggregating $429,652,000, earned 15 per cent or better on net worth—or about one-half of all the "independents" listed, doing nearly 60 per cent of the total business listed. Thirty-nine "independent" companies were earning better than 20 per cent and doing a business of $287,687,000, or about 40 per cent of the total business listed.

Regarding the companies earning from 15 to 20 per cent as being in the general zone of the earnings of the 5 great packers, it would appear that of the 117 "independent" companies listed, 39 were more profitable than the average of the "Big Five," 60 were less profitable, and 18 were in the same general class with slightly higher rates than the Big Five on the basis of the latter's unaudited returns. The 39 clearly more profitable companies did 40 per cent of the "independent" business listed, the 60 clearly less profitable companies did another 40 per cent of the business listed, while the 18 intermediate companies did the remaining 20 per cent of the business listed.

Turning now to a comparison of rates of profits on net worth for the five great packers and the 65 independent packers already tabulated for the years 1914, 1915, and 1916, the following table has been prepared:

TABLE 37.—*Comparison of rates of profit on net worth, five great packers and 65 independent packers.*

Year.	Rate of profit.	
	5 great packers.	65 independent packers.
	Per cent.	*Per cent.*
1914	8.3	12.6
1915	12.8	13.1
1916	18.5	22.1
Average, 3 years	13.5	16.3

Thus it appears that in 1914, 65 independent packers earned 12.6 per cent on net worth while the five great packers only earned 8.3 per cent. In 1915 the great packers earned less than the 65 independent packers by a narrow margin. In 1916 the great packers averaged 18.5 per cent against the independent packers 22.1 per cent. The average for the three years shows a rate of profitableness considerably to the advantage of the independents.

Section 9. The significance of comparisons between the profits of the great packers and the independents.

On their face the foregoing figures show that of the four years when comparisons were made (1914, 1915, 1916, and 1918) the average rate of earnings on net worth for the great packers was invariably less than that of the independent packers as a group. The obvious conclusion to be drawn is that the independent packers are making relatively more money than the great packers. Before adopting this conclusion, however, it is important that certain qualifications be set forth.

To begin with, from the standpoint of the character of the business, the activities of the great packers and of the independent packers are not entirely comparable. The great packers operate branch houses, car routes, and a great number of nonlive-stock manufacturing and selling businesses. The independent packers, on the other hand, confine themselves almost exclusively to the production of meat and primary live-stock products. They dispose of their output through brokers or sell it locally, and have not, as a rule, any widespread system of branch houses or refrigerator car routes. If it were possible to segregate the live-stock business of the big packers from other activities in which they alone (and not the independents) are engaged, a basis of comparison with the independent companies might be established, but when all activities are lumped together in one

figure for the entire business of the great packer, the resulting rate of earnings is not conclusive when compared with that of the independent packer.

The fact that the earnings of the great packers have averaged less than that of the independent packers in the years under review raises an interesting question as to the big packer's earnings in his meat business as compared with his earnings in the nonlive-stock business. As it has been found impossible under the present accounting procedure of the great companies to bring about a dependable segregation, the question can not be answered conclusively. It may be argued that the great packers earn as much on their meat investment as the larger independent pork packers or beef packers. If they do earn less, it is indicative of lack of efficiency on their part—if profitableness can be taken as a measure of efficiency.

Granting for the moment that they do earn returns as high as those enjoyed by the larger independents, why is it that their rate on total business is less? Obviously because they earn a rate so low on the non-livestock section as to reduce the rate for the whole business to a point which is considerably less than that earned by the independent meat packers. This assumption corresponds with the question already raised in Chapter I as to the losses and the low profits obtained by the great companies in entering new and unrelated fields. As they are continually investing their surplus earnings in these new fields and have to carry losses for a time pending the establishment of these new businesses on a profitable basis, it follows that in any given year, the rate of profit in these lines will be retarded, and also the rate on the whole business. This may be an indication of the sort of competition waged in the invasion of unrelated distributing and manufacturing lines.

To summarize, the deduction to be made from the comparative figures already tabulated would seem to be that either the great packers are less efficient, from the standpoint of profits, in the production of meats than the larger independents; or else granting an equal, or greater profitableness in the meat business, their continual invasion of new fields is a source of burden in the shape of losses on the current earnings. In other words high profits on meat may be used to finance new activities pending the establishment of the latter on a firm basis, meanwhile keeping down the average return on the total business, to a level less than that shown for the larger independent companies.

So far as the independent packers considered individually are concerned, it is important to point out that only a few companies earn a rate higher than that shown for the five great packers, but the few which do earn a higher rate are mostly large companies

and effect thereby a preponderating influence on the average rate for the independents considered as a class. It is only these larger, profitable, independent companies that are considered in the deductions outlined above.

In connection with the comparative figures, two other interesting points are seen. Swift & Co. has repeatedly contended that it is necessary for the great packers to enter new fields, often unrelated to the meat business, in order to keep up the efficiency of the organization. It would appear from the above tabulations and the deductions drawn therefrom that, contrary to this contention, it has cost the great packers a lower rate of profitableness than that enjoyed by the larger independent companies, as the price of entering new fields. Had they remained strictly in the meat business, their efficiency, measured in terms of profitableness, would perhaps have been greater.

Again, it has been extensively claimed by Swift & Co. that their rate of return on the basis of sales is low, only averaging from 2 to 3 cents for each dollar of products sold. Only the wide extent of the great packers' organization, they claim, can enable the company to sell at such a low rate and give the consumer the resulting benefit in reasonable prices. If this contention were true, it would follow that the independent packer with his limited organization could not exist on a return of only 2 or 3 cents per dollar of sales.

Table 26 indicates that the rate of return for the independent beef packers averages 2.2 cents, for the pork packers 2.4 cents, for the mixed packers 1.7 cents, and for the 117 companies combined 2.2 cents, per dollar of sales. Thus it appears that the independent companies as a class, while making about the same profit on sales as do the great companies, reap a high rate on investment (18.1 per cent), and the contention of the great packers that only a large organization can exist on these rates is not sustained by the facts.

EXHIBITS.

EXHIBIT A.

MEMORANDUM ON THE DISTRIBUTION OF THE COMMON AND PREFERRED STOCK OF SULZBERGER & SONS CO. (WILSON & CO.)

At the time of the incorporation of the Sulzberger & Sons Co. the outstanding common stock of Schwarzschild & Sulzberger amounted to 43,733 shares. Of this amount Ferdinand Sulzberger, president of Schwarzschild & Sulzberger Co. turned over 43,582 shares to Sulzberger & Sons Co. for the consideration of $25,227,800.

In payment of $20,000,000 of said $25,227,800 he accepted all the common stock of Sulzberger & Sons Co. at par, and in payment of the balance, or $5,227,800, he accepted 52,278 shares of the 6 per cent preferred stock of Sulzberger & Sons Co. also at par.

The above deal left 151 shares of the old common stock of Schwarzschild & Sulzberger Co. still outstanding. Of this amount 40 shares were subsequently bought by Sulzberger & Sons Co. for $24,000. The remaining 111 shares of the common stock were turned over to the Sulzberger & Sons Co. by Max J. Sulzberger, son of Ferdinand Sulzberger, the former president of Schwarzschild & Sulzberger Co. in consideration of which transaction he received 222 shares of the preferred stock of Sulzberger & Sons Co.

Thus of the $12,000,000 of authorized preferred stock of Sulzberger & Sons Co. there were immediately issued the following stock:

$5,227,800 of preferred stock to Ferdinand Sulzberger.

$22,200 of preferred stock to Max J. Sulzberger.

$19,500 of preferred stock to the original subscribers: Nathan Sulzberger, Max J. Sulzberger, Germon F. Sulzberger, Nathan Grubenheimer, M. S. Loeb, each 39 shares.

Total preferred stock issued, $5,269,500, leaving a balance of $6,730,500 unissued at the time of incorporation.

Very soon a syndicate was formed by Hallgarten & Co. to purchase $3,250,000 par value of the company's 6 per cent preferred stock. They were also given an option upon the remainder of the unissued preferred stock of $3,480,500.

On December 8, 1910, the preferred stock of the company was placed on a 7 per cent basis.

On December 19, 1910, the Mercantile Trust Co. and the Equitable Trust Co. both agents of Sulzberger & Sons Co., the former transfer agent, the latter registrar, were authorized to issue 34,500 shares of preferred stock, in addition to the outstanding 52,695 shares of preferred stock, thus making a total of 87,195 shares outstanding on December 19, 1910.

On January 3, 1911, Hallgarten & Co. and Salomon & Co. reported to Sulzberger & Sons Co. that they had sold another 10,000 shares of preferred stock and the above trust companies were authorized to register and issue an additional block of 10,000 shares of preferred stock, thus making a total of 97,195 shares outstanding on January 3, 1911.

On January 17, 1911, Hallgarten & Co. and William Salomon & Co. sold another 2,805 shares of preferred stock.

On April 10, 1911, at the meeting of the finance committee a resolution was adopted to sell the unissued authorized preferred stock of the company amounting to 13,500 shares. An option on it was given to the Guaranty Trust Co. and William Salomon & Co. and Hallgarten & Co.

Recapitulation of preferred stock issued for cash up to and including Dec. 30, 1916.

	Shares.
December 19, 1910	34,500
Janaury 3, 1911	10,000
January 17, 1911	2,805
	47,305

These shares added to the preferred stock issued at the time of incorporation would make $10,000,000 of preferred stock outstanding.

By the end of the fiscal year of 1918 an additional 4,760 shares of preferred stock were issued for cash, thus adding another $476,000 to the preferred stock of $4,730,500 issued for cash up to 1916, and raising the amount of preferred stock issued for cash up to the end of the fiscal year 1918 to $5,206,500.

EXHIBIT B.

MEMORANDUM ON THE REORGANIZATION OF CUDAHY PACKING CO.

The Cudahy Packing Co. underwent a thorough reorganization on October 7, 1915, on which date the Cudahy Packing Co. took out a charter under the laws of Maine, and thus changed its status from an Illinois corporation to a Maine corporation.

The authorized and outstanding capital stock of the old Cudahy Packing Co. at the time of the organization of the new Cudahy Packing Co. was $12,000,000, consisting of $10,000,000 of common stock and $2,000,000 of 6 per cent preferred stock. The new Cudahy Packing Co. was incorporated with an authorized capital stock of $20,000,000 which was to be divided into 114,495 shares of common stock having a par value of $100 each and 85,505 shares of preferred stock also with a par value of $100 each. These 85,505 shares were to be made up partly of the old 20,000 shares 6 per cent preferred stock issued in 1902 and 65,505 additional shares of 7 per cent preferred stock. It is to be noted that while all of the authorized preferred stock amounting to $8,550,500 was issued immediately upon the incorporation of the new company, of the authorized common stock only $3,449,500 was issued at that time. There was thus created a situation where the outstanding capital stock of the new company was identical to that of the old company, namely, $12,000,000, with the difference that the common stock of the old company was reduced from $10,000,000 to $3,449,500 under the new company, and the preferred stock, which under the old company amounted to $2,000,000, was now raised by the same amount as the common stock was decreased, namely, by $6,550,500. This conversion was undertaken for the purpose of shifting the control of the company, which could be exercised only through the ownership of the common stock, from one

branch of the Cudahy family to another branch. Since the death of Michael Cudahy, senior member and founder of the Cudahy Packing Co. up to its reorganization in October, 1915, the majority of common stock of the company was vested in the hands of Joseph M. Cudahy, son of the deceased Michael Cudahy and his immediate relatives. The provision whereby the common stock of the old Cudahy Packing Co. was to be converted into preferred stock of the new Cudahy Packing Co. aimed at the elimination of this branch of the family as a controlling factor in the business, and the bestowal of these privileges upon E. A. Cudahy, brother of the late Michael Cudahy. This was accomplished by having amongst others the common stock of Joseph M. Cudahy and his relatives converted into 7 per cent preferred stock, and placing all of the common stock of the new company that was issued at the time of its organization into the hands of E. A. Cudahy.

The bases of conversion and the salient changes resulting therefrom were as follows:

The common stock of the old Cudahy Packing Co. which amounted to 100,000 shares at the time of the organization of the new company was divided into three blocks:

(*a*) 56,350 shares were held by Joseph M. Cudahy, formerly president of the Cudahy Packing Co., Illinois, and his relatives.

(*b*) 40,450 shares were held by Edward A. Cudahy and his relatives.

(*c*) 3,200 shares were held by some of the employees of the Cudahy Packing Co.

According to the provisions of the reorganization plan the Joseph M. Cudahy block of common stock was to be exchanged on the basis of $110 of 7 per cent preferred stock of the new Cudahy Packing Co. for each $100 of common stock, the Joseph M. Cudahy group thus absorbing 56,350 shares plus 5,635 shares, or a total of 61,985 of the 65,505 shares of 7 per cent preferred stock that the new company was to issue.

The same basis of $110 was also adopted for the exchange of the common stock held by the group of employees of Cudahy Packing Co., thus absorbing the balance of 3,520 shares of the 65,505 new shares of 7 per cent preferred stock authorized by the new company.

All of the common stock that was issued by the new company at the time of its organization, 34,495 shares, went to Edward A. Cudahy in exchange for his holdings of common stock in the old Cudahy Packing Co. which, as previously brought out, amounted to 40,450 shares. The result was that at the time of the organization of the Cudahy Packing Co. of Maine, E. A. Cudahy, together with his immediate relatives, exercised sole control in the new company. This condition, however, obtained only for a short while, since a policy has been adopted by the present management of the company to increase the number of its shareholders by frequent stock issues. It will be recalled that the old Cudahy Packing Co. had an issue of $2,000,000 worth of 6 per cent preferred stock since 1902. This stock remained unaffected by the reorganization, the preferred stock of the Cudahy Packing Co. now outstanding thus consisting of the $6,550,500 of 7 per cent preferred stock issued for the first time in 1915 and the $2,000,000 of 6 per cent preferred stock that was issued for the first time by the old Cudahy Packing Co. in 1902.

EXHIBIT C.

Reconciliation of profits as reported by packers and Commission's estimate of company net profits and profits available for dividends and surplus.

	1912	1913	1914	1915	1916	1917
ARMOUR & CO.						
Profit reported by company	$5,702,000	$6,028,000	$7,510,000	$11,000,000	$20,100,000	$21,294,000
Add:						
Capitalization New York Dressed Beef Co.	.....	.....	.....	.....	1,500,000	.....
Sundry reserves	.....	.....	.....	.....	500,000	.....
Estimated retainable profit.	5,702,000	6,028,000	7,510,000	11,000,000	22,100,000	21,294,000
Add:						
Income-tax reserves	.....	.....	.....	.....	81,000	5,635,000
Pension-fund contributions [1]	.....	130,000	130,000	156,000	156,000	208,000
Bonus reserves	.....	.....	.....	.....	512,000	.....
Estimated net profit	5,702,000	6,158,000	7,640,000	11,156,000	22,849,000	27,137,000
SWIFT & CO.						
Profit reported by company	8,250,000	9,250,000	9,450,000	14,088,000	20,466,000	34,650,000
Add:						
Car line depreciation adjustment	.....	.....	.....	1,674,000	.....	.....
Abandoned property charged off	.....	.....	.....	484,000	.....	.....
Fluctuation in securities, net	.....	.....	.....	3,349,000	*1,525,000*	.....
Estimated retainable profit.	8,250,000	9,250,000	9,450,000	19,595,000	18,943,000	34,650,000
Add:						
Income-tax reserves	37,000	61,000	65,000	21,000	1,255,000	10,170,000
Pension-fund contributions [1]	458,000	138,000	136,000	1,104,000	2,474,000	2,416,000
Estimated net profit	8,745,000	9,449,000	9,651,000	20,720,000	22,672,000	47,236,000
MORRIS & CO.						
Profit reported by company	1,813,000	1,917,000	2,206,000	2,321,000	3,832,000	5,401,000
Add:						
Estimated over depreciation	.....	.....	.....	.....	858,000	761,000
Estimatad retainable profit.	1,813,000	1,917,000	2,206,000	2,321,000	4,690,000	6,162,000
Add:						
Income-tax reserves	.....	.....	.....	.....	.....	1,750,000
Pension-fund contributions [1]	.....	.....	.....	.....	200,000	100,000
Estimated net profit	1,813,000	1,917,000	2,206,000	2,321,000	4,890,000	8,012,000
WILSON & CO. INC.						
Profit reported by company	(2)	(2)	(2)	2,464,000	4,914,000	6,498,000
Add:						
Sundry reserves	.....	.....	.....	.....	400,000	200,000
Estimated retainable profit.	646,000	272,000	1,995,000	2,464,000	5,314,000	6,698,000
Add:						
Income-tax reserves	.....	.....	.....	.....	.....	1,621,000
Estimated net profit	[2]646,000	[2]272,000	[2]1,995,000	2,464,000	5,314,000	8,319,000
CUDAHY PACKING CO.						
Profit reported by company	1,129,000	1,329,000	1,402,000	724,000	3,011,000	4,431,000
Add:						
Inventory reserve	.....	.....	.....	.....	500,000	*446,000*
Estimated retainable profit.	1,129,000	1,329,000	1,402,000	724,000	3,511,000	3,985,000
Add:						
Income-tax reserves	.....	.....	.....	.....	.....	950,000
Estimated net profit	1,129,000	1,329,000	1,402,000	724,000	3,511,000	4,935,000

[1] Contributions to employees' pension funds may well become within a few years a legitimate cost of industry, but until this principle is accepted by industry in general, and the cost assessed equitably to all companies (as depreciation is now accepted and assessed), it is doubtful if these fluctuating donations on the part of only three of the companies can be allowed as an operating expense. They are treated therefore in the sense of a distribution of profits.

[2] Company figures subsequently amended by accountants' report, and commission has taken latter figures as more reliable, although it is known that these audited profits are before charging depreciation.

EXHIBIT D.

PROFIT AND LOSS ACCOUNT SHOWING CLASSIFIED EXPENSES OF THE CUDAHY PACKING CO.

The Cudahy Packing Co. is the only one of the great packers which attempts to compile a profit-and-loss statement showing total sales, cost of sales, and classified expenses for the whole business. A copy of this statement for the years 1912 and 1917 is exhibited herewith.

CUDAHY PACKING CO.

Profit and loss account per company reports.

	1912		1917	
	Amount.	Per cent.	Amount.	Per cent.
Income:				
Income from sales	$90,443,970	100.0	$184,811,423	100.0
Dividends from other corporations	45,254	.....	59,272	.....
Interest and rent received	22,244	.....	215,967	.....
Income from refrigerator cars	423,098	.....	437,977	.....
Miscellaneous earnings	839,191	.....	1,109,176	.....
Total	91,773,757	.....	186,633,815	.....
Outgo:				
Live-stock purchases	66,184,905	73.2	128,579,301	69.6
Other products and materials	6,348,624	7.0	24,182,404	13.1
Manufacturing supplies	2,635,997	2.9	4,107,754	2.2
Manufacturing expense	4,994,173	5.5	7,509,002	4.1
General and selling expense	4,900,517	5.4	8,330,460	4.5
Freight on shipments	4,347,928	4.8	5,617,573	3.0
Repairs	303,549	.3	471,498	.3
Depreciation	236,436	.3	766,070	.4
Interest	692,163	.....	1,549,224	.....
Income and excess profits tax reserves	.....	.....	1,090,000	.....
Total	90,644,292	.....	182,203,286	.....

The other four packers make no attempt to prepare a statement similar to the above, and accordingly it is impossible to compare the various items of income and outgo between companies or to secure any comprehensive picture of the operating accounts at all.

EXHIBIT E.

DEPARTMENTAL RESULTS, PER BOOKS, SWIFT & CO., ARMOUR & CO., WILSON & CO., INC.

The following tables purport to show the departmental profits of Swift & Co., Armour & Co., and Wilson & Co., Inc., for all plants combined, for the six years 1912 to 1917, inclusive, except that results for Wilson in 1917 were not available. These figures were taken directly from the records of the several companies, without adjustment of any kind. They are here presented, it can not be too carefully pointed out, not as the actual results of the departments concerned but rather to illustrate the incongruities of the departmental system of profit-finding as now conducted by the great packers. The reader is invited to inspect carefully these results as tabulated, and to draw his own conclusions as to the reliability, measured in terms of probabllity and consistency, of the departmental profits as now aggregated on the books.

Departmental results, per books, all plants combined.

SWIFT & CO.

(Losses in italics.)

	Fiscal year—					
	1912	1913	1914	1915	1916	1917
Beef section:						
Beef carcasses	*$4,638,634*	*$686,658*	*$504,397*	*$150,563*	*$113,328*	*$93,745*
Beef carcasses, frozen	40,729	18,189	6	*996*	129,614	157,587
Beef cutting	*983,670*	328,276	217,955	243,805	485,925	670,810
Frozen cuts	178,613	265,151	221,475	102,371	194,356	933,042
Hides	4,026,814	72,485	174,475	639,209	372,487	*733,259*
Oil house	1,343,700	*149,551*	56,855	41,724	283,667	119,997
Tallow and grease	228,981	*32,397*	*18,097*	61,343	177,011	396,356
Cremol	4,681	4,568	5,643	4,628	7,428	4,053
Beef hams	108,785	159,061	96,525	25,772	87,516	237,850
Smoked beef	*8,642*	21,293	52,647	61,732	80,477	145,475
Pickled beef	31,145	4,244	6,891	17,672	22,729	349,791
Tripe	39,409	100,981	212,639	109,927	40,475	40,737
Tongues	154,153	113,564	109,688	46,238	61,437	61,114
Beef casings	179,006	314,484	169,697	141,668	*159,623*	7,131
Animal fertilizer	47,380	*17,417*	*120,928*	*77,396*	19,574	221,541
Bone house	71,418	*41,459*	*76,520*	*53,825*	*29,149*	*43,740*
Offal		137,687	18,649	4,776	139,892	523,069
Expenses		*168,052*	*268,759*	241,288	*158,268*	*389,975*
Storage account						*43,914*
Selling adjustments		762,567	1,264,756	994,925	1,220,675	365,217
Total, beef section	823,968	1,207,018	1,619,200	2,454,299	2,862,395	2,926,137
Total, hog section [1]	2,547,988	3,800,597	3,002,968	812,708	8,397,213	15,800,247
Calf section:						
Veal carcasses	102,932	*20,988*	*12,297*	13,319	25,181	*12,409*
Veal carcasses, frozen	8,024	5,469	1,069	491	7,502	19,873
Veal cuts	4,871	32,651	32,602	19,638	60,036	102,680
Calfskins	89,844	*44,866*	*14,377*	22,167	37,462	32,817
Offal		45,219	*3,042*	1,354	33,504	46,438
Expenses		*21,119*	10,790	14,112	*6,119*	*28,699*
Selling adjustments		226,242	260,176	254,616	378,130	429,045
Total, calf section	205,671	222,608	274,921	325,697	535,696	589,745
Sheep section:						
Mutton carcasses	*637,090*	206,180	804	27,572	*18,661*	6,953
Mutton carcasses, frozen	16,683	24,683	*761*	14,814	5,488	22,831
Mutton cuts	*76*	19,239	22,024	8,716	7,241	4,369
Pelts	840,029	*12,315*	1,740	*27,224*	6,841	114,537
Wool	285,878	171,184	244,013	645,915	694,875	1,263,854
Sheep casings	49,489	42,240	7,798	18,900	*2,848*	90,206
Offal		49,532	55,586	*1,054*	7,310	36,410
Expenses		*87,785*	*55,749*	29,781	4,274	*80,035*
Selling adjustments		81,553	192,573	*168,727*	*2,261*	*806,360*
Total, sheep section	554,913	544,511	468,028	563,693	702,259	652,767
Mixed and specialty departments: [2]						
Sausage	697,418	741,628	924,845	1,229,681	1,269,045	1,652,890
Lard	555,033	*34,254*	60,941	554,143	1,240,460	2,368,887
Canning	66,560	38,707	77,210	73,310	114,774	192,892
City hides and fats	37,308	15,855	*4,196*	39,431	185,952	108,876
Commercial fertilizer	*55,376*	*30,424*	181,667	305,118	933,783	196,072
Soap	*535,104*	*472,252*	*645,784*	*150,263*	220,453	564,913
Glue	170,771	133,434	203,982	314,043	687,072	1,214,238
Stock food	198,584	202,404	137,362	225,565	206,706	876,169
Hog hair	75,889	39,290	*51,517*	39,964	9,550	77,574
Butterine	261,978	367,286	313,602	190,651	168,039	628,245
Compound and cotton oil	702,505	1,123,580	629,153	303,266	1,128,561	3,896,001
Produce	652,018	284,158	*139,534*	15,732	757,806	292,078

[1] Details not available.

[2] Not including results of many separate controlled companies.

EXHIBIT E—Continued.

Departmental results, per books, all plants combined—Continued.

ARMOUR & CO.

(Losses in italics.)

	Fiscal year—					
	1912	1913	1914	1915	1916	1917
Beef section: [1]						
Dressed beef	*$2,361,204*	*$2,522,811*	*$980,633*	*$515,076*	*$1,621,248*	*$3,516,341*
Fresh beef cuts	361,641	219,571	192,480	*328,949*	9,757	362,372
Hides	1,122,790	628,105	546,005	538,027	768,392	*501,214*
Oleo	559,543	182,180	381,071	761,087	1,317,836	1,364,186
Beef casings	151,717	224,996	286,584	290,797	*95,177*	*159,772*
Dried beef	.....	138,662	62,803	104,794	79,126	123,652
Beef curing	.....	18,268	129,312	16,164	257,283	497,005
Pickled beef	.....	52,865	154,529	96,224	100,082	381,944
Fresh beef products	.....	.....	.....	.....	371,785	570,443
Hog section: [1]						
Dressed hogs	*115,749*	*30,260*	16,182	77,516	135,033	198,639
Fresh pork cuts	614,342	347,915	432,668	309,907	271,730	*259,074*
Smoked meats	151,237	*100,497*	*397,296*	*268,917*	*972,139*	*1,072,162*
Sweet pickled meats	*460,325*	663,215	92,625	*9,951*	1,908,551	1,327,100
Vinegar pickled pork products	.....	58,866	77,038	42,041	28,784	7,710
Dry salt meats	*28,051*	*61,965*	*12,646*	14,285	1,061,482	3,050,130
Boiled hams	3,687	183,159	137,253	*281,813*	184,541	213,317
Refined lard	.....	*545,418*	*237,559*	615,707	308,940	501,067
Kettle rendered lard	.....	151,546	130,056	74,275	43,040	*14,142*
Neutral lard	*34,660*	*40,636*	*10,217*	69,607	159,969	118,921
Barrelled pork	.....	.....	19,911	253,023	129,745	167,008
Sheep section: [1]						
Dressed sheep	*374,592*	*429,413*	*219,901*	*344,368*	*277,022*	*797,640*
Wool and pelts	275,988	88,122	207,685	148,440	453,078	983,014
Calf section: Dressed calves	*123,558*	19,453	21,244	60,872	116,298	236,098
Mixed section: [1]						
Fresh sausage	299	123,030	354,684	479,569	605,651	1,348,402
Dry sausage	333,120	303,624	220,167	282,587	676,366	665,357
Canned meats	85,339	215,982	841,765	631,553	328,245	1,447,651
Tallow and grease	.....	145,828	69,923	3,611	40,564	12,974
Butterine	133,654	111,349	159,849	166,244	56,551	367,750
Casings (sheep and hog)	251,315	485,857	325,096	111,826	261,360	487,896
Sterilized meats	.....	.....	.....	.....	.....	*11,224*
Sundry specialties:						
Glue	187,264	136,184	150,643	171,350	575,024	1,453,651
Soap	216,038	418,602	344,548	649,548	651,633	840,296
Beef extract	*23,703*	16,992	*42,623*	*8,351*	174,932	229,975
Pepsin	27,025	52,148	52,638	61,314	71,935	94,284
Mince meat	6,086	33,525	40,274	17,263	25,718	31,171
Gut strings	5,007	6,396	12,293	26,652	59,613	83,588
Albumen	*3,068*	950	1,890	9,184	20,063	30,194
Hair and bristles	73,949	15,032	26,894	157,867	234,873	57,867
Sandpaper	63,370	74,106	57,402	64,268	196,972	226,108
Fertilizer	418,590	646,737	1,082,959	2,913,494	2,826,916	2,737,697
Lard substitutes	.....	548,044	*48,336*	218,075	615,408	1,726,148
Ammonia	.....	.....	105,322	84,548	86,038	123,256
Nonlive-stock departments: [2]						
Butter	3,423	56,296	*30,798*	*117,844*	224,022	30,938
Eggs	*5,317*	*24,776*	*164,458*	*60,442*	*17,563*	*131,606*
Poultry	*84,481*	*50,495*	*189,906*	*181,661*	8,090	*145,777*
Cheese	84,511	*68,732*	47,559	51,042	327,296	359,688
Soda fountain	120,216	2,180	36,745	*174,629*	81,729	286,188
Grape juice	.....	.....	.....	.....	65,666	41,900
Canned and dried fruits	.....	.....	.....	.....	36,803	227,938
Canned fish and vegetables	.....	.....	.....	.....	305,372	1,538,188

[1] Section totals not shown because definition of section has not remained constant over period.
[2] Does not include all income from these sources.

EXHIBIT E—Continued.

Departmental results, per books, all plants combined—Continued.

WILSON & CO., INC.

(Losses in italics.)

	Fiscal year—				
	1912	1913	1914	1915	1916
Beef section:[1]					
Dressed beef	*$1,966,975*	*$2,819,182*	*$3,412,650*	*$2,091,898*	*$2,072,451*
Beef cuttings	*214,703*	*248,989*	*19,813*	*135,443*	211,141
Hides	1,209,002	1,401,161	1,557,948	678,480	980,945
Oleo	636,438	656,057	927,791	612,439	477,418
Beef curing	*8,502*	24,436	32,896	*24,804*	*508*
Beef casings	191,611	167,698	225,759	115,436	*30,933*
Hog section:[1]					
Fresh pork	*4,527*	*283,280*	*5,997*	53,465	*378,777*
Sweet pickled pork	233,708	284,892	69,590	86,991	427,865
Barrel pork	15,328	*9,557*	50,314	*26,166*	73,930
Dry salt pork	229,182	66,978	5,480	355,334	460,264
Smoke house	5,850	*17,904*	21,386	5,445	*34,869*
Prime steam lard	27,325	3,355	84,224	41,291	71,692
Lard refinery	259,665	108,566	74,477	*1,666*	247,625
Hog casings	114,588	65,802	84,662	71,178	38,612
Boiled ham	24,087	10,845	34,218	20,447	50,702
Sheep section:[1]					
Sheep slaughtering	*36,872*	*11,360*	*21,806*	*46,608*	*1,910*
Dressed mutton	*96,646*	*193,361*	*262,911*	*110,882*	*112,749*
Pelts	135,439	177,395	240,790	31,205	3,999
Wool	158,084	*36,091*	145,999	58,240	298,260
Sheep casings	8,643	16,582	63,805	77,813	70,949
Calf section:[1]					
Calf slaughtering	1,146	*9,396*	*12,689*	*9,082*	4,380
Dressed veal	*9,618*	*13,196*	*21,775*	*13,626*	9,970
Calf skins	*1,095*	*2,812*	1,457	*6,781*	12,312
Mixed and specialty departments:[1]					
Sausage	48,091	69,145	88,122	60,350	106,895
Tongues	111,126	96,391	72,884	62,946	104,495
Tallow	141,400	155,872	109,556	75,902	141,468
Pickled trimmings	13,747	3,843	117,902	*153,055*	2,607
Offal (all animals)	257,706	252,337	169,545	120,734	130,850
Bone	15,304	19,050	*67,324*	*68,569*	25,615
Canning	105,451	29,262	293,036	*30,011*	*197,057*
Butterine	1,089	*54,126*	18,924	*16,999*	4,486
Head	22,432	40,791	54,204	33,401	43,090
Foot	13,447	16,421	25,423	13,040	14,527
Fertilizer	87,624	52,421	*91,248*	*73,453*	*76,404*
Hair	38,467	47,610	92,002	63,466	111,994
Produce	*67,312*	*27,659*	13,547	*27,236*	3,050

[1] Division into sections made by Commission, and accordingly no totals are taken. Not all departments are included.

EXHIBIT F.

FIVE GREAT PACKERS.

Consolidated balance sheets, Nov. 2, 1918.

(Per reports to United States Food Administration.)

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Total.
ASSETS.						
Cash	$23,046,361	$26,536,608	$8,342,955	$7,476,940	$3,968,973	$69,371,837
Receivables, etc	55,807,930	103,805,924	16,198,800	15,280,743	14,097,974	205,191,371
Inventories	136,421,912	202,028,169	45,909,035	41,839,616	31,911,212	458,109,944
Securities—stocks and bonds	32,048,017	39,300,646	1,486,696	10,922,317	1,879,719	85,637,395
Fixed assets (as depreciated)	79,054,737	77,874,380	17,328,971	26,934,293	14,735,716	215,928,097
Deferred charges	9,571,570	4,426,294	657,649	919,080	1,554,338	17,128,931
Branch house investment	98,225,023	82,669,274	18,504,133	20,986,912	19,667,092	240,052,434
Good will	512,098	.....	.....	10,215,656	.....	10,727,754
Total assets	434,687,648	536,641,295	108,428,239	134,575,557	87,815,024	1,302,147,763
LIABILITIES AND NET WORTH.						
Notes payable	132,674,410	188,856,284	44,769,959	54,719,601	31,455,608	452,475,862
Accounts payable, accrued liabilities, etc	18,593,422	69,504,073	3,420,215	17,932,251	2,306,886	111,756,847
Bonds and mortgages	106,280,600	31,368,000	10,730,000	15,645,186	18,585,245	182,609,031
Total liabilities	257,548,432	289,728,357	58,920,174	88,297,038	52,347,739	746,841,740
Preferred stock	3,725,400	.....	.....	10,476,400	8,550,500	22,752,300
Common stock	100,000,000	150,000,000	3,000,000	20,000,000	11,449,500	284,449,500
Surplus and undivided profits[1]	73,413,816	96,912,938	46,508,065	15,802,119	15,467,285	248,104,223
Total net worth	177,139,216	246,912,938	49,508,065	46,278,519	35,467,285	555,306,023
Total liabilities and net worth	434,687,648	536,641,295	108,428,239	134,575,557	87,815,024	1,302,147,763

[1] Includes reserves for income taxes. Figures on these reports will not agree in many instances with figures per annual reports published by companies themselves.

COMMENT ON CONSOLIDATED BALANCE SHEET.

Under the Food Administration profit regulation, the several great packers were required to submit balance sheets at the end of each accounting period. A standard form was prescribed, but owing to the diversity of accounting methods it was found impossible for all companies to complete the form in every detail. The accompanying consolidated balance sheet is an abbreviated transcript of the required form, and the figures are as reported by the packers, unaudited, for November 2, 1918.

The figures for the five companies constitute an imposing total. Gross assets amount to over $1,300,000,000, of which only about 11 millions, or less than 1 per cent, is good will. The small sum for good will in Armour's statement comes from a subsidiary company whose accounts were "spread" in making the consolidated statement. The branch-house investment includes both fixed property and working assets, and thus it is impossible to show the total fixed properties of the companies—plants, branch houses, and everything else—in one clean figure. Such property, including the 215 millions shown for plants, and the unknown amount incorporated in the 240 milllons of branch-house investment, probably does not exceed 350 millions, or only about 27 per cent of the total assets, and considerably less than the single item of inventories which amounts to 458 millions. Thus the current or working assets of the great companies far exceed the fixed assets. It is interesting to note that the total of notes payable, representing bank paper and the like, equals 452 millions, or almost

exactly the valuation placed upon inventories. "Receivables" include trade accounts, personal accounts (from officers, etc.), and notes receivable.

"Securities" represents the book valuation of all stocks and bonds in other companies, including many companies controlled but not 100 per cent owned. The assets and liabilities of all 100 per cent owned subsidiary companies are supposed to be "spread" on this statement.

The total borrowed money is as follows:

Notes payable	$452,475,862
Bonds and mortgages	182,609,031
Total	635,084,893

while the combined net worth of the companies aggregates $555,306,023, or about 70 millions less. The par value of capital stock outstanding, both common and preferred, is $307,201,800, while the aggregate surplus amounts to $248,104,223. Thus on the basis of a $100 par value of stock, each share, in the aggregate for all companies, is worth abont $180; this in spite of large stock dividends issued against surplus in the past.

In general it may be said that the consolidated balance sheet exhibits great financial security and strength, not only in total, but in detail, for the several companies. Against a total fixed property estimated not to exceed 350 millions, bonds and mortgages of 182 millions may be measured, or about 50 per cent of such property. Against total current assets, which may be estimated as follows:

Cash	$69,371,837
Receivables	205,191,371
Inventories	458,109,944
Branch house current assets	100,000,000
Securities (marketable)	25,000,000
Total current assets	857,673,152

current liabilities including notes and accounts payable amounting to $564,232,709, may be measured, or only 66 per cent of the current assets, leaving a margin of some 294 milllons as the excess of current assets over current liabilities.

EXHIBIT G.

Sales as reported by the five great packers, 1912–1918.

	Armour.	Swift.	Morris.	Wilson.	Cudahy.	Total 5 companies.
1912	$263,307,000	$300,000,000	$134,430,000	[1]	$90,444,000	
1913	349,897,000	400,000,000	165,909,000	[1]	104,409,000	
1914	354,801,000	425,000,000	158,983,000	[1]	109,121,000	
1915	380,157,000	500,000,000	177,040,000	[1]	116,162,000	
1916	479,969,000	575,000,000	219,781,000	$186,998,000	133,951,000	$1,595,709,000
1917	[2] 577,366,000	871,276,000	268,792,000	225,000,000	184,811,000	2,127,245,000
1918	[2] 842,143,000	[2] 1,390,883,000	[2] 407,947,000	326,931,000	286,661,000	3,254,565,000

[1] Figures not available.
[2] Not including all South American business.

EXHIBIT H.

EARNINGS OF LEATHER COMPANIES.

The earnings of certain Armour and Swift tanning companies as reported by them in recent years are as follows:

	Armour & Co.	Swift & Co.
1912	$604,741	$1,490,462
1913	382,138	1,207,007
1914	798,446	986,027
1915	1,405,463	2,340,751
1916	3,954,651	4,317,362
1917	2,431,887	5,214,292

These figures include the leather and tanning profits shown on the final profit and loss statement of the parent company, but the Commission is not certain that they include earnings from all sources in this connection. (For a list of the specific companies see end of exhibit.)

As an indication of earnings of the big packers in the selling branch of their leather business the following is quoted from a letter of January 17, 1917, by the Eastern Leather Co., an Armour selling subsidiary, to Mr. F. W. Croll, of Armour & Co. The letter undoubtedly refers to the fiscal year ended November 1, 1916.

> We are enclosing our check on the National City Bank, New York City, payable to Mr. J. Ogden Armour, for $915,787, same being a dividend of 53 per cent on the 17,279 shares of common stock standing in his name. In addition to this, and in accordance with our conversation when in Chicago, we have set aside as a surplus $250,000, which represents 10 per cent on the common stock.
>
> We are also enclosing a check on the National City Bank for $202,145.62 payable to Mr. Armour, this being the balance due on 6,020 shares of common stock held for employees.

Here is a memorandum of May 15, 1917, from J. D. Murphy to Mr. H. W. Boyd, president of the Armour Leather Co.:

MAY 15, 1917.

MR. H. W. BOYD:

Herewith the comparative statement of results in the leather business for the three months ending Apr. 28, showing earnings of $1,964,945.18. This does not include Woodstock, as we have not finished enough of our own leather up there to make a loss and gain result of any value as indicating the possibilities of the plant.

As per Mr. Armour's instructions, given through Mr. Stull, we are charging off in reduction of the above the following reserves:

Earnings as above		$1,964,945.18
Reserve for income tax, 3 months ending Apr. 29, 1917	$36,915.61	
Reserve for estimated excess profits tax, 6 months ending Apr. 28, 1917	423,620.84	
		460,536.45
Net earnings		1,504,408.73

J. D. MURPHY.

The manner in which Swift & Co. proceeded when a Government limitation of profits was expected, is shown by the the following letter, in which Louis F. Swift writes to his brother, Edward F. Swift:

GOVERNMENT CONTROL—LEATHER COMPANIES.

CHICAGO, *Nov. 26, 1917.*

MR. EDWARD F. SWIFT, Second Floor.

We have had a virtual statement from Mr. Cotton that the Government expects to establish profit control in the leather industry. With this notice, I think we should at least consider the advisability of reappraising the properties of the following companies: A. C. Lawrence Leather Co., National

Calfskin Co., Winchester Tannery Co., St. Paul Tannery Co., Ashland Leather Co., St. Joseph Tanning Co. (in which we have only 50 per cent ownership).

If it is agreeable to you, will arrange with Mr. Moon to go into the matter and submit figures.

Awaiting your reply,

LOUIS F. SWIFT.

I approve if done quietly and promptly.

E. F. S.

Detail of Earnings of Leather Companies.

SWIFT & CO.

(Losses in italics.)

	1912	1913	1914	1915	1916	1917	
Ashland Leather Co.	*$13,633.19*	$41,570.62	$18,115.49	$54,494.77	$82,449.52		
A. C. Lawrence Leather Co.	522,251.11	231,640.55	232,691.05	447,204.19	575,787.71		
A. C. Lawrence Leather Co., Ills.				763.46	788.18		
National Calf Skin Co.	457,653.55	140,558.03	9,350.56	*48,087.13*	608,111.05		$1,718,946.74
National Leather Co.	3,562.12	*6,137.54*	*4,448.72*	29,357.97	60,287.76		
St. Paul Tanning Co.	*80,778.02*	3,768.53	2,677.64	21,011.62	*12,540.34*		
National Leather Mfg. Co.	*15,396.45*	*15,067.45*	*4,026.73*	*3,690.04*	*22,740.68*		
Winchester Tanning Co.	14,998.59	20,724.16	15,489.13	11,954.40	21,728.51		
St. Joseph Tanning Co.		*8,917.65*	*36,017.49*	7,621.19	77,079.63		
Misc. Tanning Accounts	551,804.60	798,867.78	752,196.23	1,820,120.47	2,926,410.57		3,495,344.76
Total	1,490,462.31	1,207,007.03	986,027.16	2,340,750.90	4,317,361.91		5,214,291.50

ARMOUR & CO.

Armour Leather Co.	$330,965.64	$127,112.73	$635,228.05	$1,090,666.24	$586,728.17	$490,505.24
Eastern Leather Co.	273,775.00	255,025.00	163,217.50	314,796.68	1,206,350.00	
Empire Tanning Co.					358,362.82	475,653.55
Cappon Bertsch Leather Co.					447,616.39	503,705.70
Sylvia Tanning Co.					99,062.02	244,519.55
J. K. Mosser Co.					1,040,918.44	497,711.62
Badger State Tanning Co.					215,613.61	184,946.98
Dominion Tanneries						34,844.02
Total	604,740.64	382,137.73	798,445.55	1,405,462.92	3,954,651.45	2,431,886.66

EXHIBIT I.

NOTES ON THE LONG-TIME INDEBTEDNESS OF THE FIVE GREAT PACKERS.

Armour & Co.

The long-time indebtedness of the company can be divided into two classes:

(*a*) *Real estate first gold 4½ per cent bonds* dated June 1, 1909, due June 1, 1939. The deed of trust called for an authorized bond indebtedness of $50,000,000, but during the first year of the existence of this trust only $30,000,000 was issued, the balance of $20,000,000 having been sold in 1916, thus placing on the recent balance sheets of the company a funded debt of $50,000,000.

(*b*) *Six per cent serial convertible gold debentures* dated June 15, 1918, due $10,000,000 annually June 15, 1919 to 1924, inclusive. Authorized and issued $60,000,000, of which $12,000,000 had been exchanged for preferred stock up to April 1, 1919.

The long-time indebtedness of Armour & Co. may be recapitulated as follows:

Date of authorization.	Date of issue.	Type of indebtedness.	Date of maturity.	Amount authorized.	Amount issued.
1909	1909	4½ real estate bonds	1939	$50,000,000	$30,000,000
1909	1916	do	1939		20,000,000
1918	1918	6 per cent serial debentures	1919–1924	60,000,000	60,000,000
		Total issued until the end of 1918			110,000,000

It is thus seen that it was only in 1909 that Armour & Co. increased its investments by floating a long-term loan.

Swift & Co.

For the time of its existence this company floated two long-term loans, as follows:

(*a*) *First sinking fund gold 5's* dated July 1, 1914, due July, 1944. Authorized amount $50,000,000 of which only $33,370,000 has been issued up to date.

(*b*) *Six per cent two and one-half year gold notes* dated February 15, 1919, due August 15, 1921. Authorized and issued $25,000,000. The long-time indebtedness of Swift & Co. may be tabulated as follows:

Date of authorization.	Type of indebtedness.	Date of maturity.	Amount authorized.	Amount issued.
1914	First sinking fund gold 5's	1944	$50,000,000	$33,370,000
1919	6 per cent two and one-half year gold notes	1921	25,000,000	25,000,000
	Total			58,370,000

Swift & Co. assumed its first long-term indebtedness in 1914, and, as compared with Armour & Co., its long-term indebtedness is considerably smaller. Besides it resorted to this kind of investment later than Armour & Co. which floated its first funded indebtedness in 1909. However, it has to be noted that Swift & Co. availed itself of the investor's market some time before it resorted to the above loans, in the form of capital stock subscriptions. This form of financing evidently met the requirements of Swift & Co. for a period and did away with the necessity of acquiring funds through floating long-term loans.

Morris & Co.

This company floated its first loan in 1909 under the designation first mortgage sinking fund, 4½ per cent gold bonds, maturing in 1939. Authorized $25,000,000, of which $12,500,000 was issued up to the end of the fiscal year 1918. Additional $6,250,000 was issued in 1919.

The above data may be tabulated as follows:

Date of authorization.	Date of issue.	Type of indebtedness.	Date of maturity.	Amount authorized.	Amount issued.
1909	1909	First mortgage sinking fund 4½ per cent gold bonds.	1939	$25,000,000	$12,500,000
1909	1919	do	1939		6,250,000
		Total issued until July, 1919			18,750,000

Wilson & Co.,[1] Inc.

Up to 1916 the company carried at a time on its loans debts other than short-time bills payable 6 per cent debenture notes a little in excess of $8,000,000, all of which matured in April, 1916. The first loan of this character was made in 1905 to the amount of $3,000,000.

The recent long-term indebtedness of the company shows the following classes:

(*a*) *First sinking fund gold 6's series "A"* dated April 1, 1916, due April, 1941. Authorized $25,000,000, of which $20,070,000 was issued up to 1919.

(*b*) *Convertible sinking fund gold 6's* dated December 1, 1918, due December 1, 1928. Convertible into common stock. Authorized $20,000,000, all of which has been issued.

Thus, the long-term indebtedness of Wilson & Co may be recapitulated as follows:

Date of authorization.	Date of issue.	Type of indebtedness.	Date of maturity.	Amount authorized.	Amount issued.
1916	1916	First sinking fund gold 6's	1941	$25,000,000	$20,070,000
1918	1918	Convertible sinking fund gold 6's	1928	20,000,000	20,000,000
		Total issued			40,070,000

Wilson & Co., Inc., formerly known as Sulzberger & Sons Co., made extensive use of long-term loans in the form of floating debenture notes. The first bond issue, however, did not take place before 1916.

Cudahy Packing Co.

Before issuing its first bonds in 1916 the company had floated some debenture notes, but to a rather limited extent. At present the company's long-term loans are represented in the following two classes:

(*a*) *First sinking fund gold 5's*, dated December 1, 1916, due December 1, 1946. Authorized, $12,000,000; issued, $9,000,000.

(*b*) *Five-year 7 per cent sinking fund gold notes*, dated July 15, 1918, due July 15, 1923. Authorized, $10,000,000, all of which has been issued.

In order to summarize the above data the following recapitulation is presented:

Date of authorization.	Date of issue.	Type of indebtedness.	Date of maturity.	Amount authorized.	Amount issued.
1916	1916	First sinking fund gold 5's	1946	$12,000,000	$9,000,000
1918	1918	5-year 7 per cent sinking fund gold notes.	1923	10,000,000	10,000,000
		Total			19,000,000

Long-time indebtedness of the Big Five.

Name of company.	Date of first issue.	Type of indebtedness.	Date of maturity.	Amount authorized.	Amount issued.
Armour & Co.	1909	4½ per cent real estate bonds	1939	$50,000,000	$50,000,000
Do.	1918	6 per cent serial debentures [1]	1919–1924	60,000,000	60,000,000
Swift & Co.	1914	First sinking fund gold 5's	1944	50,000,000	33,370,000
Do.	1919	6 per cent 2½-year gold notes	1921	25,000,000	25,000,000
Morris & Co.	1909	First mortgage sinking fund 4½ per cent gold bonds.	1939	25,000,000	[2] 18,750,000
Wilson & Co., Inc.	1916	First sinking fund gold 6's	1941	25,000,000	20,070,000
Do.	1918	Convertible sinking fund gold 6's [3]	1928	20,000,000	20,000,000
Cudahy Packing Co.	1916	First sinking fund gold 5's	1946	12,000,000	9,000,000
Do.	1918	5-year 7 per cent sinking fund gold notes.	1923	10,000,000	10,000,000
Total long-term indebtedness certificates issued.					246,190,000

[1] Convertible into 7 per cent preferred stock.
[2] $6,250,000 was issued in 1919.
[3] Convertible into common stock.

A glance at the table will disclose the fact that in 1918 and in the first half of 1919 every one of the big packing companies increased its long-term indebtedness by issuing various types of debenture notes with the exception of Morris & Co., which met its demands for funds by issuing $6,250,000 of bonds as part of the bond issue authorized in 1909.

The total long-term indebtedness of the Big Five at the early part of 1919 was $246,190,000, of which $121.000.000 or 49.2 per cent of the amount issued up to that date, was floated in 1918 and the early part of 1919.

FOOD INVESTIGATION

REPORT

OF

THE FEDERAL TRADE COMMISSION

ON THE

MEAT-PACKING INDUSTRY

PART VI

COST OF GROWING BEEF ANIMALS
COST OF FATTENING CATTLE
COST OF MARKETING LIVE STOCK

December, 1919

WASHINGTON
GOVERNMENT PRINTING OFFICE
1920

LETTER OF TRANSMITTAL.

FEDERAL TRADE COMMISSION,
OFFICE OF THE CHAIRMAN,
June 30, 1919.

SIR: I have the honor to submit herewith Part VI of the report on the Meat Industry, which deals with the raising and marketing of live stock, the investigation of this industry being one phase of the Food Investigation, made in cooperation with the Department of Agriculture, in accordance with your direction of February 7, 1917.

This report was prepared and edited by the Office of Farm Management, the Bureau of Animal Industry, and the Bureau of Markets of the Department of Agriculture with respect to their several contributions, and is transmitted by the Federal Trade Commission as a part of its series of reports on the Meat Industry in conformity with the cooperative plan of investigation referred to above.

The Commission made no investigation of this important branch of the Meat Industry, which, by mutual agreement, was undertaken by the said Department, and therefore both the responsibility and the credit for this report belong to the Department of Agriculture.

By direction of the Commission.

WILLIAM B. COLVER,
Chairman.

The PRESIDENT, *White House.*

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FEDERAL TRADE COMMISSION.

William B. Colver, Chairman.
John Franklin Fort.
Victor Murdock.
Huston Thompson.
J. P. Yoder, Secretary.

COST OF GROWING BEEF ANIMALS

CHAPTER I.—A Three-Year Study of the Cost of Producing Calves and Yearlings in the Corn-Belt States.

CHAPTER II.—Cost of Producing Beef Animals on Twelve Western Ranches.

Prepared by The United States Department of Agriculture,
Office of Farm Management, W. J. Spillman, Chief.
Bureau of Animal Industry, J. R. Mohler, Chief.

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CHAPTER I.

CHAPTER II.

PREFACE.

This report presents the results of three investigations of the cost of growing beef animals.

Chapter I, entitled "A Three-Year Study of the Cost of Growing Calves and Yearlings in the Corn-Belt States," includes a study that has been carried on cooperatively by the Office of Farm Management and the Bureau of Animal Industry. On most of the farms visited beef raising is only one of a number of enterprises, usually being secondary to the growing of grain. On these farms the breeding herds are kept primarily for the production of feeder cattle, as many farmers find it difficult to get feeders of the quality they desire at a price that will yield a profit.[1]

Chapter II, entitled "Cost of Producing Beef Animals on Twelve Western Ranches," is a study of the cost of producing beef animals on four large ranches in Oklahoma and seven in Texas. It also includes a study of the cost of producing cattle by a cattle company which operates in several Western States and also in Canada. The figures presented in this report are taken directly from the books kept by the various cattle companies, and show the actual expenses incurred. On most of the ranches the costs are averaged over a period of five years and may be considered as representative of conditions on a prewar basis.

The data presented should be considered as reports of progress in this particular field of investigation and not as conclusive evidence of any widespread condition of cost. As such, they afford a contribution to the literature on this subject which should prove of interest in understanding conditions operative during the specific periods of investigation on the farms furnishing the data.

Two modes of investigation were used in gathering the data upon which this report is based. The material in Part I was obtained by the survey method upon farms in the Corn-Belt States during the three years 1914 through 1916. Chapter II is a summary of five years' (1912–1917) cost figures of range production. The limited number of ranches supplying material for Chapter II, the wide variations in the systems of production and in seasonal conditions, make it useless to

[1] The results of the first two years of this study, entitled "Cost of Producing Beef Animals in the Corn-Belt States," were published in 1916. This two-year report includes details concerning methods of work that have been omitted in the present report. An additional study, entitled "The Economical Winter Feeding of Beef Cows in the Corn Belt" (Dept. Bull., 615), gives some of the reasons for the great variation in the cost of wintering the breeding herds.

give average costs of production. Such average would be misleading and any deductions drawn therefrom would be without real significance.

Indeed, the continued rise in the market value of breeding stock, feeds, and the necessary farm and ranch equipment and supplies since this work was done, makes it impossible to apply the figures in either portion of the report under present day conditions. Since the last year studied (1917) the costs of necessary winter feeds have nearly doubled, the cost of ranch supplies and repairs has increased, and the replenishing of breeding stock has called for the paying of extremely high prices. Nevertheless, the figures obtained shed light upon the conditions of production during the time of study and are of value as indicative of the general status of the industry.

COST OF GROWING BEEF ANIMALS.

CHAPTER I.

A THREE-YEAR STUDY OF THE COST OF PRODUCING CALVES AND YEARLINGS IN THE CORN-BELT STATES.

By J. S. COTTON, *Agriculturist, Office of Farm Management*, and EDMUND H. THOMPSON, *Scientific Assistant in Beef Cattle Investigations, Bureau of Animal Industry.*

This report presents the results of a three-year investigation undertaken to determine the cost of producing beef animals in the Corn Belt. The inquiry covers (1) the cost of maintaining breeding herds; (2) the cost of growing calves to weaning time; and (3) the cost of carrying calves from weaning time through their first winter until they go on pasture as yearlings.[1]

The original investigation was begun in 1914, when records were procured in Indiana, Illinois, Minnesota, Iowa, Missouri, South Dakota, Nebraska, and Kansas. It was continued during 1915–16, when practically the same territory, with the exception of Indiana and South Dakota, was revisited. During the three-year period 906 usable records were obtained, consisting of data on 23,258 cows, 970 bulls, and 15,200 calves, of which 2,908 were fattened as baby beef.

In classifying the records according to the type of business that was followed in the handling of the breeding herds, it was found that they naturally fell into six major groups. These groups have been described in Report No. 111, as follows:[2]

Beef.—Farms where all the cows are kept strictly for beef (not including farms producing baby beef). On a number of these farms enough milk was taken from two or three of the best milkers to supply the family with milk and butter. In such instances the milk and butter credits have been ignored, it being found that the value of the extra labor in milking and caring for the calf and of the extra grain given usually offsets the value of these milk products.

Baby beef.—Farms on which the breeding herds are maintained for the production of high-grade calves, which are fattened on the same farm and sold at from 12 to 18 months of age as baby beef.

[1] This investigation has been cooperatively carried on by the Office of Farm Management and the Animal Husbandry Division of the Bureau of Animal Industry. The results of the first two years of the investigation have been published in Report No. 111 of the Office of the Secretary, entitled "Methods and Cost of Growing Beef Cattle in the Corn Belt States." This report includes data for a third year.

[2] Report No. 111, p. 6.

Dual purpose.—Farms on which all of the cows are milked, and either cream or butter sold, the calves being weaned at birth and raised on skim milk.

Mixed.—Farms on which the practice is to milk the best cows, their calves being weaned at birth and fed skim milk. The calves from the other cows are allowed to run with their dams as in the beef group. This is a combination of the beef and dual-purpose business.

Partially milked.—Farms on which the calves are not weaned, but on which a part of the milk is drawn from the cow, the calf taking the remainder. There are a number of variations of this practice. One of these is to allow the calves to run with their dams during the day, but to keep them in a separate inclosure at night, the cows being milked in the morning. Another common practice is to keep the calves separate and allow them to take the bulk of the milk twice daily, the remainder being taken for household and market purposes.

Double nursing.—Farms where some of the cows are milked and their calves given to other cows, the latter raising two calves each.

TABLE 1.—*Summary table showing the various factors that make up the cost of producing a yearling for the six groups.*

Item.	Beef.	Baby beef.[1]	Dual-purpose.	Mixed.	Partially milked.	Double nursing.
Number of farms	354	124	157	139	95	37
Average number of cows per farm	31.80	30.9	12.67	22.89	16.22	19.24
Cost of maintaining breeding herd:						
Gross cost of maintaining a cow	$34.23	$35.15	$55.30	$43.43	$41.75	$43.53
Credits other than calf	4.79	5.28	52.12	25.69	22.25	31.95
Net cost of maintaining a cow	29.44	29.87	3.18	17.74	19.50	11.58
Net cost of maintaining a bull	42.28	50.99	36.51	45.31	34.88	38.58
Calf crop:						
Percentage of cows raising calves to weaning time	8.48	85.9	84.4	87.0	87.4	86.6
Number of calves per bull	21.6	25.1	10.7	18.5	13.9	15.5
Cost of raising a calf to weaning time:						
Cow charge	$34.47	$34.47	$4.02	$20.73	$22.23	$13.75
Bull charge	2.25	2.24	3.95	2.82	3.18	2.99
Feed	.01	.....	9.73	4.76	.04	.30
Labor	.....	.....	2.36	1.02	.02	.03
Total cost at weaning time	36.73	36.71	20.06	29.33	25.47	17.07
Cost of raising a yearling:						
Number of farms	296	.....	141	131	84	35
Average number of calves per farm	23.23	.....	10.24	17.99	12.55	15.97
Cost at weaning time	[2] $36.85	.....	[2] $20.64	[2] $29.56	[2] $24.81	[2] $17.09
Winter-feed cost	11.44	.....	9.48	11.14	10.95	9.84
Other charges	4.60	.....	5.00	4.65	4.71	4.09
Gross cost	52.89	.....	35.12	45.35	40.47	31.02
Credits	1.60	.....	1.94	1.50	1.53	1.66
Net cost	51.29	.....	33.18	43.85	38.94	29.36

[1] The statement for the baby-beef group ends with the cost of producing a calf at weaning time.
[2] The change in the number of farms on which the tabulations for the cost of producing a yearling are based causes the figure on the cost of the calf at weaning time to change in this part of the table.

SUMMARY OF RESULTS.

The gross cost of maintaining a cow for one year in each of the groups is shown in Table 1. It is lowest in the beef group ($34.23), and almost as low in the baby-beef group ($35.15). In the dual-purpose group, where the cows were milked and were consequently

given extra feed during the winter months, the gross cost is highest ($55.30).

The net cost of maintaining the breeding cows is highest in the baby-beef group ($29.87), and but a little less in the beef group ($29.44). It was lowest in the dual-purpose group ($3.18), where the milk and manure credits together were nearly as large as the cost of the keep of the cows.

The cost of keeping a bull for a year, including depreciation (or, as sometimes occurs, appreciation), was greatest in the baby-beef group ($50.99). It was lowest in the partially milked group ($34.88).

The largest calf crop (87 per cent) was obtained in the mixed group, while the lowest (84 per cent) was found in the beef group.

The greatest item of expense in raising a calf to weaning time, except in the dual-purpose group, is the cow charge, or that part of the total cost of maintaining the cow that is chargeable to each calf. This cow charge varies from $4.02 in the dual-purpose group to $34.47 in the beef and baby-beef groups.

The bull charge, or that part of the cost of keeping a bull for one year that is chargeable against a calf, is greatest in the dual-purpose group ($3.95), and lowest in the baby-beef and beef groups ($2.24 and $2.25, respectively), although the maintenance charges for the latter were much greater. This difference is due to the fact that in these two groups the herds were much larger than in the dual-purpose group.

In the dual-purpose and mixed groups there is an additional charge for feed and labor in caring for the calves raised by hand. The combined charges for feed and labor amounted to $12.09 in the dual-purpose and $5.78 in the mixed groups.

The cost of raising a calf to weaning time was lowest in the double-nursing group ($17.07), next lowest in the dual-purpose group ($20.06), and was greatest in the beef and baby-beef groups ($36.73 and $36.71, respectively).

The cost of the yearlings was greatest in the beef group ($51.29) and lowest ($29.36) in the double-nursing group.

The beef calves cost the most, and even though of a much better quality than those in the other groups they were relatively the least profitable, costing at weaning time about $13 more than their inventory value.

The calves in the dual-purpose group, although the poorest in quality, ranked second in the point of profitableness. The milk credit is evidently a very important factor if calves are to be profitably produced for beef on the average small Corn Belt farm.

In the mixed group, which is intermediate between the beef and dual-purpose groups, the financial statement of the calves is also

intermediate. As fewer than one-half of the cows were milked, the figures more nearly approach those for the beef group.

In the partially milked group, where the conditions were more nearly like those in the dual purpose, except that the milk credits were naturally less, the profit and loss statements are very much the same as for the calves in the latter group. The calves in the partially milked group show an average loss of about $3 a head.

The calves in the double-nursing group were the only ones to show a profit for the three years. There are, however, too few records for the drawing of definite conclusions.

The calves produced in 1914 were relatively not as profitable as those for the other two years. This was to a considerable extent due to the fact that a severe drought prevailed over a part of the region surveyed, which resulted in greatly increased expenses in maintaining the breeding herds, as well as in maintaining the calves themselves. The following conclusions from Report No. 111, on the results of the first two years' investigation, still seem to apply as the results of the three-year investigation:

> The data obtained indicate that the keeping of cattle for beef purposes alone is adapted to the more extensive types of farming, while the keeping of cattle primarily for beef purposes, but with an income also obtained from milk products, is better adapted to the more intensive types of farming.
>
> The averages brought out in this investigation would seem to indicate that profits obtained from the raising of calves on Corn Belt farms are very small. However, these facts must be taken into consideration: (1) Good returns have been obtained for a large quantity of roughage which, had it not been utilized by live stock, would have been waste; (2) a home market has been provided for salable crops; (3) on many farms a large acreage suitable for pasture only has been utilized; (4) profitable employment is provided for a season of the year when labor otherwise might be idle; (5) a return is obtained for capital invested in equipment which, in many instances, were it not utilized by live stock would, return nothing; (6) when the farmer merely breaks even he has at least made 6 per cent interest on the money he has invested in the cattle business.
>
> When all of these factors are taken into consideration, even though there appears to be little or no profit, it is believed that in most cases the farm income is greater because of cattle having been kept on the farm.

METHODS OF OBTAINING DATA.

Records were obtained by experienced field men, who personally visited the farms and obtained the necessary information on especially prepared blanks. Lists of names were secured from persons well acquainted with the cattlemen in their sections. The records of farms where cows were kept distinctly for dairy purposes or where the herds were maintained only for the production and breeding of pure-bred animals were eliminated. Herds having fewer than five cows and those where correct inventories of the breeding stock could not be obtained, or where it was impossible to get accurate information

on the feed rations, are also omitted. Otherwise no discriminations were made by the field men. The farms visited were chosen at random, without reference to the efficiency or inefficiency of the practices followed, thus insuring more normal conditions than if the study were confined to the better farmers. Many of the first-year farms were revisited during the following years, so that there might be a continuous record from year to year for as many farms as possible.

The investigation was extended over three years for the purpose of minimizing the effect of any abnormal conditions that might prevail temporarily. Such a condition affected a part of the records obtained in 1914. On some of these the costs were much higher than ordinary because of the severe drought which prevailed the previous year in some of the sections visited.

DESCRIPTION OF DISTRICTS VISITED.

Indiana.—Twenty-three records (the classification of which is shown in Table 2) were obtained in Monroe and Green Counties in 1914. In these counties the land is mostly rough and broken and is best adapted to grazing purposes.

TABLE 2.—*Classification of the records obtained in the eight States.*

State.	Beef.	Baby beef.	Dual purpose.	Mixed.	Partially milked.	Double nursing.	Total.
Indiana	6	.....	1	.....	15	1	23
Illinois	13	6	3	.....	1	2	25
Minnesota	12	.....	37	22	.....	3	74
Iowa	124	69	63	56	11	21	344
Missouri	66	14	3	6	47	.....	136
South Dakota	6	.....	4	5	.....	.....	15
Nebraska	51	20	12	19	5	3	110
Kansas	76	15	34	31	16	7	179
Total	354	124	157	139	95	37	906

Illinois.—Twenty-one records (see Table 2) were obtained in Pike, Adams, and Hancock Counties, in the west-central part of the State, in 1914. In this region the land is level to broken, although on the farms where the records were taken it was usually quite broken. In 1916 four additional records belonging to the baby-beef group were obtained in Hancock County.

Minnesota.—Seventy-four records were obtained in six counties in southwestern Minnesota, one-half of which were in the dual-purpose group. This region lies largely in the Wisconsin drift area, where the land is level to gently rolling.

Iowa.—Three hundred and forty-four records were obtained in Iowa, a little over one-half (see Table 2) being in the beef and baby-beef groups. The greater number of the records were taken in the southwestern part of the State, where the land is mostly rolling to

broken and where large areas are devoted to corn and pasture. Figure 1 is an excellent illustration of the rolling character of the country and of the area devoted to corn. The soil, which belongs to the Missouri loess series, is very productive. A considerable number of the records were also obtained in the northwestern counties, where the land is gently rolling. Approximately 50 of the records were obtained in the eastern portion of the State, in the general vicinity of Waterloo and Cedar Rapids.

Missouri.—One hundred and thirty-six records were obtained in Missouri, all but three of which were taken north of the Missouri River. The majority of the records were taken in Putnam County, where the land is very rolling, as shown in figure 2, most of it being kept in pasture or hay. The remaining records were chiefly from Boone, Howard, and Carroll Counties, where the soil is mostly underlain by limestone and where blue-grass pastures predominate. A few records were also obtained in Nodaway County, in the northwestern part of the State.

South Dakota.—Fifteen records were taken in southeastern South Dakota in 1914. The general farming conditions were very similar to those found in the adjacent territory in Iowa and Nebraska.

Nebraska.—One hundred and ten records were obtained in the eastern part of Nebraska. About one-third were taken south of the Platte River, while the rest were procured in Cedar, Wayne, Cuming, and Thurston Counties. In the latter area the land is in many places quite rolling, and a considerable area is devoted to pasture, although much corn is grown.

Kansas.—One hundred and seventy-nine records were obtained in the eastern one-third of Kansas. About one-fourth of these were from the northeastern corner of the State, where the land is mostly rolling and where most of the farms were comparatively small. Many of the farmers in this section made a practice of selling some milk products. A number of the farms were situated in the so-called limestone section of Kansas, where the hill lands, because of the outcroppings of limestone, are of necessity kept in pasture. In this region the soil in the valleys is very productive, and excellent crops are grown, especially of alfalfa and corn. The general appearance of this region is shown in figure 3.

CLIMATIC CONDITIONS.

Weather conditions were quite diverse during the growing season for the three years for which data are presented. In 1913 a severe drought prevailed over a considerable area of the region visited. In Indiana, Illinois, southwestern Iowa, Missouri, and Kansas practically all the farms visited were affected by this drought. The drought was especially severe in Indiana, Missouri, and Kansas, where much

FIG. 1.—A representative farm scene in southwestern Iowa, showing rolling character of country and the large area in corn.

FIG. 2.—Characteristic topography in Putnam County, Mo. The land varies from slightly rolling to decidedly broken, and much of the farm area is devoted to pasture and raising hay.

FIG. 3.—Characteristic view of limestone region of Kansas. Corn and alfalfa are grown on level bottom lands. Timber along the creek bottom furnishes winter shelter for cattle. The broken hill lands because of limestone outcroppings are kept in pasture.

or all of the corn was destroyed and where pastures were badly damaged. As there were ample rains that fall, the pastures, except in Kansas, where they were too badly burned out, revived quickly and furnished much late fall and early winter grazing.

The conditions in 1914 were much more favorable, although the summer was extremely hot and precipitation was less than normal. The corn crop in southwestern Iowa and southeastern Nebraska was somewhat damaged because of the lack of rain. There was plenty of hay, however, and feed prices were normal.

The season of 1915 was unusually wet and cold. As the result of heavy rains in the early part of the summer the crops were badly damaged and in some sections entirely destroyed. The small grain crop was unusually large, but much of it was damaged before it could be harvested. The hay crop was also unusually large, but much of it was seriously damaged, this being especially true of the first two cuttings of alfalfa in Kansas and Nebraska. The corn was very late in all of the regions surveyed, and in parts of Iowa, Nebraska, and Minnesota it was damaged badly by the frost. In certain sections it was so badly damaged that it could only be used as fodder.

GENERAL INFORMATION CONCERNING THE FARMS VISITED.

The average size and value of the farms visited, together with the relative area that each of the leading crops occupy, is shown in Table 3. The Iowa farms were the smallest, averaging 285 acres, although those in Indiana and Illinois were not much larger. The largest farms were found in Kansas and South Dakota, averaging 548 and 511 acres, respectively.

TABLE 3.—*The average size and value of the farms visited and the percentage of each in pasture, corn, small grain, and hay.*

State.	Number of farms.	Average size of farms.	Percentage in pasture.	Percentage in corn.	Percentage in small grain.	Percentage in hay.	Average value of farms.
		Acres.					
Indiana	23	294	65	15	5	9	$17,346
Illinois	25	292	48	21	11	12	39,712
Minnesota	74	333	28	23	19	14	41,625
Iowa	344	285	31	29	18	14	50,730
Missouri	137	364	50	15	10	20	31,668
South Dakota	14	511	35	29	18	15	49,567
Nebraska	110	396	33	27	18	14	43,560
Kansas	179	548	58	14	10	12	42,744

The area devoted to pasture varied from 28 per cent in Minnesota, where the pasture averaged 93 acres per farm, to 65 per cent in Indiana, where there was an average of 191 acres per farm. The average size of the pasture in Kansas was 318 acres, or 58 per cent of the total farm area. Corn made up 29 per cent of the total area of

the farms in Iowa and South Dakota and 27 per cent in Nebraska, there being an average of 126 acres in South Dakota, 107 acres in Nebraska, and 82 acres in Iowa. Only 14 per cent of the total area of the farms visited in Kansas was devoted to corn, but the acreage (77 acres) was nearly as large as that for Iowa. In Missouri 15 per cent of the land, or 54 acres, was in corn. The area in small grains varied from 5 per cent in Indiana to 19 per cent in Minnesota, and averaged 18 per cent in Iowa, South Dakota, and Nebraska. The relative area in hay varied from 9 per cent (26 acres) in Indiana to 20 per cent (73 acres) in Missouri.

The average real estate value of the farms visited was greatest in Iowa, where the average investment amounted to $50,730 and the value per acre was the highest. The average investment in South Dakota was very nearly as great, $49,567, although the value per acre was much less. The farms having the lowest real estate investment were in Indiana, their average valuation being only a little over $17,000.

THE BREEDING HERD.

A little over one-half of the records (478) belonged to the beef and baby-beef groups, while 157 were in the dual-purpose, 139 in the mixed, 95 in the partially milked, and 37 in the double-nursing group. Of the 23,258 cows on which figures were obtained, 15,833, or nearly 70 per cent, were in the beef and baby-beef groups. The average number of cows per herd, as shown in Table 4, is greatest in the baby-beef group (36.9), and least in the dual-purpose group (12.7). The average number of bulls per farm is 1.11, varying from 1.29 in the baby-beef group to 0.94 in the partially milked group. Practically all of the farmers in the beef and baby-beef groups kept bulls. In the remaining groups there were several instances where the farmer did not keep a bull, either borrowing or hiring the services of one when needed. In a number of cases the bull was owned jointly by several farmers.

TABLE 4.—*Size of the herds in each of the different groups.*

Group.	Number of farms.	Cows.		Bulls.	
		Total number.	Average number.	Total number.	Average number.
Beef	354	11,261	31.8	397.5	1.12
Baby beef	124	4,572	36.9	156.0	1.29
Dual purpose	157	1,990	12.7	150.5	.96
Mixed	139	3,182	22.9	138.5	1.00
Partially milked	95	1,541	16.2	89.5	.94
Double nursing	37	712	19.2	38.0	1.03
Totals and averages	906	23,258	24.8	970.0	1.11

Value of cows.—The average value of cows for the three-year period (as shown in Table 5) was $65, being $63 for the 1914 and 1915

records, and $67 for those of 1916. The cows in the baby-beef group were the best bred, and averaged in value $71 a head, while those in the beef group were valued at $65. The cows in the dual-purpose group were valued at $60. The best cows were found in Iowa and Missouri, where the average value for 11,197 head was $67. The poorest cows were found in Indiana, where the average value of 262 head was $55. In Minnesota the average value for 1,383 head was $57. The cows in Nebraska and Illinois were valued at $65, while those in Kansas and South Dakota averaged $63 and $61, respectively.

TABLE 5.—*Average value of the cows and bulls in the six groups.*

	Beef.	Baby beef.	Dual purpose.	Mixed.	Partially milked.	Double nursing.	Average.
Cows	$65.00	$71.00	$60.00	$65.00	$61.00	$63.00	$65.00
Bulls	129.00	164.00	82.00	123.00	87.00	99.00	117.00

Value of bulls.—The average value of bulls (see Table 5) was $117, there being but a little change in the yearly averages. The highest grade bulls, most of which were pure-bred animals, were in the baby-beef group, these having an average value of $164. The next best bulls were found in the beef group, their average value being $129, while the cheapest bulls, and incidentally those of the poorest quality, were found in the dual-purpose group, where the average value was $82.

The best bulls were found in Iowa, where the average value for the State was $125. Those in Nebraska and Kansas were of a slightly lower value than those in Iowa. The poorest bulls were found in Indiana and Minnesota, where most of the herds were kept for the production of milk as well as of calves.

COST OF KEEPING THE BREEDING HERD.

In ascertaining the cost of raising a calf the first step is to determine the cost of maintaining the breeding animals for one year. In this report the cost of maintaining the bulls has been figured separately from the corresponding cost for the cows, there being a considerable variation in some of the items of expense and of credit. These two charges, namely, the cow charge and the bull charge, are assembled under the cost of raising a calf to weaning time.

COST OF KEEPING A COW.

In getting data on the cost of keeping a cow for one year the feeding year beginning May 1 was used. As most of the records were taken in midsummer, it was thus possible to get needed information concerning the quantities and values of the different feeds used during the winter just past, while these figures were comparatively fresh in the

farmer's mind. To get the feed costs for the entire year on the cows and calves it was necessary to use the pasture figures for the previous season. The data for the first year covered the year from May 1, 1913, to April 30, 1914. These records, for convenience in discussion, have been designated as the "1914 records" and the two following years, respectively, as the 1915 and the 1916 records.

All expenses have been considered except for salt, depreciation, and a few miscellaneous minor charges which could not be determined with any approach to accuracy. It was found that the value of the cows, except in the cases of a few pure-bred herds, where the calves were grown only for breeding purposes, was based on their sale value as beef. This sale value was usually enough greater than their value on entering the herd to cover the extra expense of fattening for market, thus eliminating any depreciation. The items of expense considered in the preparation of the tables are feed, labor, equipment, interest, and miscellaneous charges. These are shown for each of the six groups in Tables 7 to 12, inclusive.

Feed.—The feeding year may be divided into the summer grazing period and winter feeding period. The grazing season generally runs from the middle of April or the first of May approximately November 1. The summer grazing charge usually amounts to from $6.50 to $8.50 per year, depending partly on the length of the growing season and more largely on the region in which the pasture is located.

The winter feeding period has been considered as beginning with the date the cattle are turned on the stalk fields, usually in November, and lasts until they go on pasture the following spring. While the average winter feeding period is 5.6 months, it is heaviest during February, March, and April. The feed costs, as shown in the tables that follow, vary considerably from year to year, according to the region and the kind of feeds used. These are based on the average farm price of the various feeds used as estimated by the farmers.

TABLE 6.—*Winter rations per cow in the beef, baby-beef, and partially milked groups.*

Group.	Number of farms.	Length of feeding period.	Grain.	Hay.	Silage.	Corn fodder.	Stalks.	Stover.	Straw.	Winter pasture.	Total feed units.
		Months.	*Pounds.*	*Tons.*	*Tons.*	*Acres.*	*Acres.*	*Acres.*	*Tons.*	*Days.*	
Beef	354	5.6	122	0.95	0.35.	0.12	1.6	0.24	0.33	4	21,291
Baby beef	124	5.6	141	.97	.37	.12.	1.8	.05	.25	5	21,275
Partially milked	95	5.6	264	.97	.30	.07	1.4	.28	.29	7	2,357

The amount of feed consumed per cow for the cows in the beef, baby beef, and partially milked groups is shown in Table 6. The basis of feed for these cows was hay, silage, and corn fodder (cut corn with the ears on), each cow receiving an average of about 1 ton of

hay, 0.33 ton of silage and in the two beef groups 0.12 of an acre of corn fodder. In the partially milked group they received 0.07 of an acre of corn fodder. The cows in the partially milked group received considerably more grain than those in the other groups, partly because they received less fodder and partly because some of them were milked during the winter.

That the rations may be more easily compared, they have been reduced to the feed unit basis.[1] The total number of feed units for the beef and baby-beef groups were practically the same, 2,291 and 2,275. The cows in the partially milked group, which were a little heavier fed, received an average of 2,357 feed units.

Labor.—The labor charge is based on the total hours of man and horse labor performed on each farm caring for the cows. Man labor has been charged at the rate of 20 cents per hour and horse labor at 10 cents per hour.

Equipment.—The equipment charge is based on the proportionate share for the use of the yards, buildings, and other equipment that each animal must bear. In making this charge a rate sufficient to cover interest, taxes, insurance, and depreciation has been made against the equipment used. This rate was 10 per cent on buildings and 6 per cent on the land in the feed lots.

Interest.—Interest has been figured at 6 per cent per annum on the average inventory value of the cows. This rate is a little less than the average rate of live-stock loans in these States, which are usually short time loans. It is, however, a trifle higher than the average loans on real estate.

Miscellaneous charges.—The item of miscellaneous charges includes insurance, taxes, veterinary expenses and risk. The taxes average about 31 cents per head, while insurance, which covers loss from fire, lightning and tornadoes, usually runs about 8 cents per head. The veterinary charges averaged about 13 cents per head. The item of risk amounted to 57 cents an animal. This charge was based on the average loss on over 23,000 cows for the three years. It is a trifle higher than the risk used in the report for the first two years' work [2] which was 43 cents. This difference is due to an unusually large number of cows being lost during the summer of 1915 because of clover bloat.

CREDITS.

All of the above expenses taken together give the gross cost of keeping a cow, from which any credits that may occur must be deducted

[1] In the feed unit system all feeds are reduced to their relative value as compared with 1 pound of some standard grain. In these tabulations a feed unit is equivalent to 1 pound of corn. Two pounds of alfalfa or 2½ pounds pounds of mixed hay are equal to one feed unit, all the other feeds being reduced similarly. A more detailed discussion of the relative value of these different feeds for the beef and baby-beef groups has been published in Farmers' Bulletin 615, U. S. Department of Agriculture.

[2] Report No. 111, U. S. Department of Agriculture. A fuller discussion of these charges is given on page 20 of that article.

before any charge can be made against the calf. The two principal credits are for milk and manure.

Manure credit.—The same manure credit has been used for all three years, this being based on the figures obtained for the 1915 records. This credit is based on the average number of loads of manure reported by the farmers to have been produced and on what the farmers consider this manure to be worth per load to them. It varies considerably according to the type of business followed and the locality from which the records were obtained. It has the least value on those farms classified in the mixed group in Kansas, while it is the most highly prized in the Iowa dual purpose group.

Milk credit.—There are no milk credits in the beef group, as it was considered that where only one or two of the best cows were milked and the milk used for household purposes the extra labor of milking the cows and caring for the calves, together with the extra feed that was given, would more than offset the value of the milk used. In the baby-beef group there were a few farms where some milk credits were obtained.

In the remaining four groups the milk is of considerable importance. It consists of milk, cream, and butter sold or used on the table, and also whole and skim milk fed to the calves and hogs. For the records obtained in 1914 and 1915 the following values were placed on the milk products:

Butter fat (per pound)	$0.25
Whole milk used by the family or fed to the calves (per gallon)	.09
Skim milk fed to calves and pigs (per hundredweight)	.20

On a number of farms cream was sold at 75 cents to 80 cents per gallon, in which cases these figures were used. These values were based on the average prices which prevailed during the three years. Throughout the region surveyed there was a general advance in the prices received for milk products in 1916. The prices used in these records are as follows:

Butter fat (per pound)	$0.28
Cream (per gallon)	.85
Whole milk used by family or fed to calves (per gallon)	.10
Skim milk (per hundredweight)	.25

Net cost of keeping a cow in the beef group.—The average net cost of keeping a cow for one year for the 354 farms in the beef group (see Table 7) is $29.44. The cost for the 1916 records was $27.81, as against $30.71 in 1914 and $29.92 in 1915, this variation being largely due to a difference in the feed costs. The feed costs for 1916 were approximately $3 per head less than for the two preceding years as feeds, expecially roughages, were much more abundant and cheaper.

TABLE 7.—*Cost of keeping a cow, based on averages for 354 farms in the beef group for the three years; also by States for 1916.*

State.	Number of farms.	Number of cows.	Charges.						Credits.			Net cost.
			Feed.	Labor	Equipment.	Interest	Other charges.	Total.	Extra calves.	Manure.	Total	
1916.												
Iowa	48	1,506	$24.55	$3.34	$2.88	$4.24	$1.21	$36.22	.....	$5.90	$5.90	$30.32
Missouri	33	822	21.33	3.84	2.30	4.30	1.08	32.85	.....	4.08	4.08	28.77
Nebraska	13	456	18.55	3.76	1.65	3.72	1.13	28.81	.....	4.94	4.94	23.87
Kansas	30	1,231	19.00	3.169	.77	3.72	1.01	28.19	$0.31	3.43	3.74	24.45
Average for 1916	124	4,015	21.72	3.60	2.09	4.08	1.12	32.61	.08	4.72	4.80	27.81
Average for 1915	110	3,703	24.80	3.53	1.83	3.78	.91	34.85	.04	4.89	4.93	29.92
Average for 1914	120	3,543	24.60	4.21	1.67	3.87	1.02	35.37	.....	4.66	4.66	30.71
3-year average	354	11,261	23.64	3.79	1.87	3.91	1.02	34.23	.04	4.75	4.79	29.44

There is a more marked variation in the net cost for the different States than for the years, as will be seen in the figures for 1916 presented in the same table.[1] The net charge per cow varies from $23.87 in Nebraska to $30.32 in Iowa.

The feed cost, which amounts to $23.64 for the average of the three years, makes up 69 per cent of the total gross cost of keeping a cow in this group. Labor amounted to $3.79, or 11 per cent; the equipment charge, $1.87, or 5 per cent; and interest, $3.91, or 12 per cent, while the other charges amounted to $1.02, or 3 per cent of the total. The manure credit averaged $4.79. There is also a small credit of 4 cents for extra calves. This is for a farm in Kansas which bought a number of additional calves and put them on other cows to raise in addition to their own calves, this credit being the prorated value of the difference between the purchase price and the inventory value of these calves.

Cost of keeping a cow in the baby-beef group.—The average farm cost of keeping a cow in the baby-beef group is $29.87 (as shown in Table 8), this being a trifle higher than for the beef group. The average cost was greatest in 1914 and least in 1916.

TABLE 8.—*Cost of keeping a cow, based on averages for 124 farms in the baby-beef group for the three years.*

Year.	Number of farms.[2]	Number of cows.[2]	Charges.						Credits.			Net cost.
			Feed.	Labor.	Equipment.	Interest.	Other charges	Total cost.	Milk.	Manure.	Total.	
1916	58	2,291	$22.62	$3.20	$2.05	$4.34	$1.08	$33.29	$0.14	$5.01	$5.15	$28.14
1915	41	1,427	25.90	3.12	1.89	4.19	.94	36.04	.....	6.35	5.35	30.69
1914	25	854	26.94	3.09	2.83	4.13	.98	37.97	.....	5.46	5.46	32.51
3-year average	124	4,275	24.58	3.15	2.15	4.25	1.02	35.15	.07	5.21	5.28	29.87

[1] For information concerning these costs by States for the years of 1914 and 1915 see Report No. 111, Office of the Secretary, pp. 21–26.
[2] Totals.

Comparing the various costs for the cows in this group with those for the cows in the beef group, it will be noted that the feed costs are greater for the cows in the baby-beef than for those in the beef group. The costs for equipment and interest are also a little larger, owing to the fact that the cows are of a little better quality and receive a little more attention. The labor bill is slightly less while the miscellaneous charges are identical. The higher credits obtained for manure very nearly offset the additional charges for feed, equipment, and interest. This higher credit for manure is largely due to the fact that there is a tendency to value manure more highly on many of the farms producing baby beef than on other farms. There is also a small credit for milk, since two farms in Missouri sold milk products.

The cost of keeping a cow in the dual-purpose group.—The average net cost of keeping a cow for 157 farms in the dual-purpose group (see Table 9) was $3.18. This low cost, as compared with that for the two groups already discussed, is due to the milk credits, the gross cost, amounting to $55.30, being considerably greater than that for those groups. The feed costs averaged $31.97, being practically the same for all three years. The labor charge averaged $15.29, which is nearly five times as great as that for the beef and baby-beef groups, and is caused by the extra work of milking. These two charges constituted 85 per cent of the total maintenance costs. The milk credit, which included not only products sold but also milk used by the family and whole and skim milk fed to the calves and pigs, averaged $46.28. The milk credit for 1914 was $36.48, when the production of milk was lower than normal because of the drying up of the pastures during the summer of 1913. In 1916 this credit amounted to $53.06, or a little over $16.50 greater than for 1914, and $3.25 greater than for 1915. This difference as compared with the credits for 1914 is largely due to a much more favorable season and also to a higher value for the milk products that year. The average manure credit for the three years was $5.84.

TABLE 9.—*Cost of keeping a cow, based on averages for 157 farms in the dual-purpose group for the three years.*

Year.	Number of farms.[1]	Number of cows.[1]	Charges.						Credits.			Net cost.
			Feed.	Labor.	Equipment.	Interest.	Other charges	Total cost.	Milk.	Manure.	Total.	
1916	47	587	$31.78	$15.42	$3.72	$3.68	$1.08	$55.68	$53.06	$6.21	$59.27	[2]
1915	57	750	31.65	16.51	3.01	3.52	.98	55.67	49.81	5.33	55.14	$0.53
1914	53	653	32.48	13.85	3.66	3.68	.91	54.58	36.48	6.08	42.56	12.18
3-year average..	157	1,990	31.97	15.29	3.44	3.63	.97	55.30	46.28	5.84	52.12	3.18

[1] Totals. [2] None. These cows returned a net profit of $3.59 per head.

In 1916 the total credit for milk and manure was greater than the maintenance cost of the cows ($55.68), so that these cows not only produced calves but yielded a small profit above expenses. This resulted in a net profit of $3.59 for 1916.

Cost of keeping a cow in the mixed group.—The average cost of keeping a cow for 139 farms in the mixed group (see Table 10) was $17.74, varying from $22.73 in 1914 to $13.64 in 1916. This cost is intermediate between those of the dual-purpose and of the beef and baby-beef groups. This would naturally be expected, as a part of the

TABLE 10.—*Cost of keeping a cow, based on averages for 139 farms in the mixed group for the three years.*

Year.	Number of farms.[1]	Number of cows.[1]	Charges.						Credits.			Net cost.
			Feed.	Labor.	Equipment.	Interest.	Other charges.	Total cost.	Milk.	Manure.	Total.	
1916	37	788	$25.20	$9.35	$2.45	$3.89	$1.11	$42.00	$23.70	$4.66	$28.36	$13.64
1915	52	1,120	27.34	9.62	2.37	3.84	.98	44.15	23.79	4.51	28.30	15.85
1914	50	1,274	28.12	8.41	2.37	3.96	.88	43.74	16.66	4.35	21.01	22.73
3-year average..	139	3,182	27.05	9.11	2.39	3.90	.98	43.43	21.20	4.49	25.69	17.74

[1] Totals.

cows were handled in the same manner as were those of the dual-purpose group, their cost being approximately the same. The rest of the cows were handled in the same manner as those in the beef and baby-beef groups. The average feed costs for the three-year period was $27.05, varying from $28.12 in 1914 to $25.20 in 1916. This is slightly greater than the feed cost for the beef and baby-beef groups, as some of the cows that were milked received additional grain. The labor charge, which averaged $9.11, was also intermediate. The average milk credit for the three years was $21.20 per cow. The average for 1916 was $23.70, being $7.04 greater than that for 1914, which amounted to $16.66. The manure credit averaged $4.49, being slightly lower than for the preceding groups.

Cost of keeping a cow in the partially milked group.—The average net cost of keeping a cow for 95 farms in the partially milked group (see Table 11) is $19.50, which is slightly higher than that for the mixed group, and varies from $22.14 in 1914 to $15.58 for 1916. The average feed cost was $25.45, which is slightly lower than that for the mixed group, as over half of the records were from Missouri and Kansas, where the winter feed costs are lower. The labor charge and other items of expense were similar to those of the mixed group.

TABLE 11.—*Cost of keeping a cow, based on averages for 95 farms in the partially milked group for the three years.*

Year.	Number of farms.[1]	Number of cows.[1]	Charges.						Credits.			Net cost.
			Feed.	Labor.	Equipment.	Interest.	Other charges.	Total charges.	Milk.	Manure.	Total	
1916	30	612	$24.13	$8.24	$2.42	$3.81	$1.00	$39.60	$19.52	$4.50	$24.02	$15.58
1915	17	291	24.00	8.34	1.78	3.69	1.00	38.81	15.04	4.82	19.86	18.95
1914	48	638	26.77	10.37	2.39	3.56	1.04	44.13	17.54	4.45	21.99	22.14
3-year average.	95	1,541	25.45	9.34	2.29	3.66	1.01	41.75	17.72	4.53	22.25	19.50

[1] Totals.

Cost of keeping a cow in the double nursing group.—For 37 farms in the double nursing group (see Table 12) the average net cost of keeping a cow was $11.58, varying from $8.82 for the 1915 records to $25.05 in 1914. In Iowa, where practically three-fifths of the records were obtained, the average net cost for the three years was $9.97. The cost of feed and the various other items of expense were practically the same as in the mixed group. The average milk credit was $26.94, being $32.94 in 1915 and only $15.71 in 1914.

TABLE 12.—*Cost of keeping a cow, based on averages for 37 farms in the double-nursing group for the three years.*

Year.	Number of farms.[1]	Number of cows.[1]	Charges.						Credits.			Net cost.
			Feed.	Labor.	Equipment.	Interest.	Other charges.	Total cost.	Milk.	Manure.	Total.	
1916	15	331	$24.77	$6.77	$2.70	$3.85	$1.11	$39.20	$25.05	$4.99	$30.04	$9.16
1915	16	282	29.37	9.80	2.86	3.89	.96	46.88	32.94	5.12	38.06	8.82
1914	6	99	27.62	9.79	3.43	3.65	1.02	45.51	15.71	4.75	20.46	25.05
3 year average..	37	712	27.22	8.56	2.88	3.83	1.04	43.53	26.94	5.01	31.95	11.58

[1] Totals.

COST OF KEEPING A BULL.

The same general items of expense are included in the maintaining of a bull for a year as for the cows, except that of necessity these vary in amount from those for the cows. In the beef and baby-beef groups the feed and labor charges are fequently greater than those for the cows, while in the dual-purpose groups they are usually less. The equipment charge is generally about the same as for the cows, while interest and the minor charges, such as taxes, insurance, and risk, are greater because of the higher value of the animals. Risk amounted to $1.87 per head. This figure is based on the average loss from the 970 bulls tabulated in the three years' records. This figure is lower than that used in the preceding years [1] ($2.47), owing to the fact that there was a very small loss in the 1916 records.

[1] Report No. 111, p. 31.

TABLE 13.—*Cost of keeping a bull in the several groups, based on a three-year average.*

Group.	Number of farms.	Maintenance charge.						Depreciation.	Appreciation.	Manure credit.	Net cost.
		Feed.	Labor	Equipment.	Interest.	Miscellaneous charges.	Total maintenance.				
Beef	54	$26.50	$3.74	$1.76	$7.10	$2.70	$41.80	$5.04	.....	$4.56	$42.28
Baby beef	124	29.50	4.19	2.16	9.09	2.69	47.77	8.39	.....	5.17	50.99
Dual purpose	157	30.25	5.11	3.32	4.68	2.61	45.97	.....	$3.85	5.61	36.51
Mixed	139	27.45	7.41	2.26	6.83	2.65	46.60	3.01	.....	4.30	45.31
Partially milked	95	25.43	8.55	2.16	4.96	2.66	43.76	.....	4.59	4.29	34.88
Double nursing	37	25.36	6.73	2.62	5.58	2.69	42.98	.36	.....	4.76	38.58

The maintenance cost (as shown under "Total maintenance" in Table 13) varied from $41.80 for 354 farms in the beef group to $47.77 for 124 farms in the baby-beef group. The feed charge varies from $25.36 in the double-nursing group to $30.25 in the dual purpose group. The bulls in the latter group, being mainly in small herds, were usually fed with the cows, thus getting more attention than the bulls in the groups which usually ran with the stock cows. The feed charge for the bulls in the baby-beef group was about $3 greater than for those in the beef group, because they were fed more grain, and as a rule were better cared for. The equipment charges vary from $1.76 for those in the beef group, some of which ran in open yards the year around, to $3.32 for the bulls in the dual-purpose group, which were usually kept in the barns with the cows. The interest charge was greatest ($9.09) in the baby-beef group, where the bulls were practically pure bred animals, and was lowest in the dual-purpose group, where the cheapest animals were kept. The miscellaneous charges were practically the same in all groups.

The sale value of the bulls varies considerably from their purchase price. In the beef, baby-beef, mixed, and double-nursing groups, where the herds are large, the general tendency is to use mature bulls, the majority of which are registered. Such animals are usually kept for a period of approximately three years, when it is usually necessary to dispose of them. The farmers are seldom able to exchange these animals with their neighbors or to sell them to other farmers, but are generally forced to ship them to market, where they are sold as beef. With bulls of this class this naturally results in a wide difference between the purchase and selling price.

On the other hand, the bulls in the dual-purpose and partially milked groups are in smaller herds, the owners of which, being small operators, usually can not afford high-priced animals. Some of them buy animals of inferior quality. Others buy yearlings or calves which are frequently of good quality, and keep them for one or two years. Such animals usually gain in value even if sold for beef.

As shown in Table 13, this difference between the buying and selling price of the bulls varies from an average depreciation of $8.39 per head for the bulls in the baby-beef group to an appreciation of $4.59 for those in the partially milked group. The manure credit ranged from $4.29 in the partially milked group to $5.61 in the dual-purpose group.

The net cost of keeping a bull for one year was greatest in the baby-beef group ($50.99). It was lowest in the partially milked group ($34.88), and next lowest in the dual-purpose group ($36.51). In the beef and mixed groups the average net cost was $42.28 and $45.31, respectively.

THE COST OF RAISING A CALF TO WEANING TIME.

In ascertaining the cost of raising a calf to weaning time, the same grouping as used for the breeding herd was followed. In the beef, baby-beef, partially milked, and double-nursing groups, all calves are weaned in the fall just before going on winter feed, at the age of six to eight months. In the dual-purpose group, the calves are all weaned shortly after birth and fed on whole and skim milk, with supplemental feed, for a period of from three to six months. In the mixed group a part of the calves run with their dams, while others are weaned at birth and handled in the same manner as are the calves in the dual-purpose group. That the calves raised on skim milk may be comparable with those that are allowed to run with their dams until fall, all costs have been figured until the time when they are practically of the same age as the calves in the other groups.

Two principal items of expense enter into the cost of raising a calf to weaning time—the cow charge and the bull charge. Where the calves are weaned shortly after birth and raised on skim milk with supplemental feeds there is an additional charge for feed and for extra labor.

The cow charge per calf is that part each calf must bear of the cost of maintaining the cows in the herd for one year. It is found by multiplying the net cost of keeping a cow a year by the number of cows per calf. This latter figure is obtained by dividing the number of cows in the herd by the number of calves raised.

The average per cent of calves for the three-year period for each group is shown in Table 14. The best calf crop (87.4 per cent) is in the partially milked group, while the poorest (84.4 per cent) is in the dual-purpose group. There is considerable fluctuation in the size of the calf crop from year to year. In the double-nursing and baby-beef groups the calf crop for the first two years was 90 per cent or better, while in the third year it dropped to practically 80 and 81 per cent, respectively, there being a very similar drop in the partially milked group. These wide fluctuations are partly due to the difference in

localities in which some of the records were obtained, and in part to the fact that contagious abortion had broken out on a number of farms during the third year. In the remaining groups the averages were fairly constant.

TABLE 14.—*Percentage of calves raised in the six groups.*

Year.	Beef.	Baby beef.	Dual purpose.	Mixed.	Partially milked.	Double nursing.
1916	84.5	81.2	85.6	85.8	82.3	79.7
1915	85.2	90.7	85.5	88.3	90.8	91.6
1914	84.6	90.8	82.2	86.7	89.9	93.3
Three-year average	84.8	85.9	84.4	87.0	87.4	86.6

Similar fluctuations occurred among the States as in the different years. The best calf crops were generally found in the various groups in Iowa, while the poorest were in Nebraska.

The bull charge is based on the number of calves produced by each bull, and is found by dividing the net cost of keeping a bull for one year by the number of calves produced. This charge depends partly on the value of the bull, but to a greater extent on the size of the cow herd and the number of calves produced. Where only a few cows were kept, as in the dual-purpose group, the bull charge is much greater, even though a much cheaper bull was used. The bull charge per calf is shown in Tables 15 to 20, inclusive.

The cost of raising a calf in the beef group.—The average farm cost of raising a calf to weaning time for 7,236 calves in the beef group was $36.73 (see Table 15), being greatest ($38.42) in 1914 and lowest ($34.87) in 1916. This varied by States, as shown in the table for 1916, from $31.19 in Kansas to $37.93 in Iowa.

TABLE 15.—*The various charges that constitute the average farm cost of raising a calf up to the weaning time (6 to 8 months) in the beef group for each of the three years, and by States, for 1916.*

State.	Number of farms.	Average number of calves.	Cows per calf.	Cow charge per calf.	Calves per bull.	Bull charge per calf.	Incidental charges.	Total.
Iowa	48	26.1	1.160	$35.10	21.0	$2.79	$0.04	$37.93
Missouri	33	21.8	1.119	31.99	18.4	2.22	.....	34.21
Nebraska	13	24.1	1.345	31.95	22.1	1.76	.02	33.73
Kansas	30	34.6	1.220	29.70	31.1	1.47	.02	31.19
Average for 1916	124	26.8	1.183	32.64	22.9	2.21	.02	34.87
Average for 1915	110	29.0	1.174	34.81	21.3	2.19	.01	37.01
Average for 1914	120	24.3	1.182	36.09	20.6	2.33	.00	38.42
Three-year average	354	26.7	1.179	34.47	21.6	2.25	.01	36.73

The cow charge per calf is $34.47. The bull charge amounted to $2.25, there being an average of 21.6 calves produced per bull. The incidental charges, amounting to 1 cent per head, cover extra care that the calves on a few farms received.

Cost of raising a calf in the baby-beef group.—The average farm cost of raising a calf for 2,908 calves in the baby-beef group (as shown in Table 16) is $36.71, or almost identically the same as for the beef calves. The average is very nearly the same for each of the three years. While the cost of keeping a cow in this group was greater than in the beef group, the slightly better calf crop was sufficient to offset this difference, so that the cow charge per calf is the same in both groups. The bull charge per calf ($2.24) is just 1 cent less than that for the beef group, although the cost of keeping a bull for a herd was $8.66 greater. The extra cost of keeping a bull in this group was more than offset by the fact that an average of 3½ more calves were produced per bull than in the beef group.

TABLE 16.—*The various charges that constitute the average farm cost of raising a calf to weaning time (6 to 8 months) in the baby-beef group.*

Year.	Number of farms.	Average number of calves.	Cows per calf.	Cow charge per calf.	Calves per bull.	Bull charge per calf.	Total.
1916	58	31.8	1.232	$34.44	24.7	$2.19	$36.63
1915	41	31.6	1.103	33.97	24.7	2.24	36.21
1914	25	30.6	1,101	35.37	26.2	2.37	37.74
3-year average	124	31.6	1.163	34.47	25.1	2.24	36.71

Cost of raising a calf in the dual-purpose group.—The average farm cost of raising a calf to weaning time for 1,500 calves in the dual-purpose group (see Table 17) is $20.06. The figures for 1915 and 1916 ($16.13 and $12.54, respectively) are much lower than for 1914, when the cost was $30.97. The average cow charge for the three years is $4.02. In 1914 it amounted to $15.57. In the two following years the milk products brought the total credits above the total cost of keeping the cows, these credits amounting to $55.14 in 1915 and $59.27 in 1916. In figuring the profits and losses in keeping cows that are kept for the production of milk it is customary to ascertain the cost of producing milk, figuring the calf as a credit. As the cows in this group are kept for the production of calves which are to be raised for beef, and as the figures here presented deal with the cost of producing a calf, it is necessary in this article to carry this credit against the calves as a minus cost.

TABLE 17.—*The various charges that constitute the average farm cost of raising a calf to weaning time (6 to 8 months) in the dual-purpose group.*

Year.	Number of farms.	Average number of calves.	Cows per calf.	Cow charge per calf.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
1916	47	10.9	1.168	$3.76	10.7	$3.78	$10.62	$1.90	$12.54
1915	57	11.4	1.170	.29	11.1	3.58	10.60	2.24	16.13
1914	53	10.1	1.216	15.57	10.1	4.50	8.00	2.90	30.97
3-year average	157	10.8	1.185	4.02	10.7	3.95	9.73	2.36	20.05

While the cow charge per calf is very low, the bull charge, on the other hand, is greater than in the other groups. The average charge is $3.95, or $1.70 greater than that for the calves in the beef and baby-beef groups. While the yearly cost of keeping a bull in this group was nearly $15 less than in the baby-beef group, this difference was more than overcome by the much lower number of calves produced by each bull. There were only 10.7 calves per bull, as compared with 25.1 in the baby-beef group.

As all of the calves in this group were weaned shortly after birth and raised on skim milk, the items of feed and labor must also be considered. The feed charge averaged $9.73, while the labor amounted to $2.36.

Cost of raising a calf in the mixed group.—The average farm cost at weaning time for 2,357 calves in the mixed group (as shown in Table 18) is $29.33. This varies from $34.06 in 1914 to $25.33 in 1916. The cow charge per calf is $20.73. In 1915 and 1916 this charge amounted to $18.28 and $16.41, respectively, while in 1914, because of the drought conditions previously noted, it amounted to $26.46. The bull charge per calf ($2.82) is slightly larger than that for the beef and baby-beef groups.

TABLE 18.—*The various charges that constitute the average farm cost of raising a calf to weaning time (6 to 8 months) in the mixed group.*

Year.	Number of farms.	Average number of calves.	Cows per calf.	Cow charge per calf.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
1916	37	18.4	1.166	$16.41	18.3	$2.57	$5.55	$0.80	$25.33
1915	52	18.5	1.133	18.28	18.8	2.68	5.63	1.05	27.64
1914	50	22.3	1.154	26.46	18.2	3.14	3.29	1.17	34.06
3-year average	139	19.8	1.149	20.73	18.5	2.82	4.76	1.02	29.33

The extra costs for feed and labor for the calves that were weaned shortly after birth and fed on skim milk are practically the same as that for the calves in the dual-purpose group. However, when these costs are prorated among all of the calves in the herd they naturally drop considerably. The average feed cost in this group is $4.76, while the labor charge averages $1.02.

TABLE 19.—*The various charges that constitute the average farm cost of raising a calf to weaning time (6 to 8 months) in the partially milked group.*

Year.	Number of farms.	Average number of calve .	Cows per calf.	Cow charge per calf.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
1916	30	16.5	1.215	$19.05	16.7	$2.80	$0.08	$0.06	$21.99
1915	17	15.6	1.101	21.21	15 0	2.48	.07	.00	23.76
1914	48	12.1	1.113	24.59	11.8	3.66	.00	.00	28.25
3-year average	95	14.1	1.143	22.23	13.9	3.18	.04	.02	25.47

Cost of raising a calf in the partially milked group.—The average farm cost of raising a calf for 1,255 calves in the partially milked group (see Table 19) is $25.47, being greatest ($28.25) in 1914, and least ($21.99) in 1916. This cost is nearly $4 less than that for the mixed group.

The cow charge per calf is $22.23, being $1.50 greater than in the mixed group. The bull charge ($3.18) was greater, there being an average of 13.9 calves, as against 18.5 calves per bull in the mixed group. As these calves got practically all their nourishment from the cows until they were weaned in the fall, the feed and labor charges are very small, the total of the two charges being 6 cents.

Cost of raising a calf in the double-nursing group.—The average farm cost of raising a calf for 1,597 calves in the double-nursing group (see Table 20) is $17.07, being very much less than for any except the calves in the dual-purpose group and $3 less than for those calves. This greatly reduced cost, as compared with the beef and baby-beef groups, is due to the milk obtained from the cows whose calves were placed on other cows. Compared with the dual-purpose group there is a much lower charge for labor, although the milk credits per cow, when averaged against the entire herd, are naturally less. The cow charge per calf is $13.75, which is lower than that for any other except the dual-purpose group. The majority of the records were procured in Iowa, where the cow charge amounted to $11.60. The bull charge was $2.99, being nearly the same as that for the partially milked group.

TABLE 20.—*The various charges that constitute the average farm cost of raising a calf to weaning time (6 to 8 months) in the double-nursing group.*

Year.	Number of farms.	Average number of calves.	Cows per calf.	Cow charge per calf.	Calves per bull.	Bull charge per calf.	Feed.	Labor.	Total.
1916	15	18.0	1.254	$12.63	16.1	$2.93	$0.37	$0.07	$16.00
1915	16	15.1	1.092	9.93	15.6	3.28	.35	.02	13.58
1914	6	14.5	1.072	26.78	13.5	2.33	.00	00	29.11
3-year average	37	16.2	1.154	13.75	15.5	2.99	.30	.03	17.07

COST OF PRODUCING A YEARLING.

In computing the cost of carrying the calves through the first winter, or from weaning time (October or November) until they are turned on pasture the following spring, about May 1, the baby-beef group has been omitted. The cost of finishing these calves for market is included with the report on the cost of finishing beef animals, otherwise the classification is unchanged.

The calves on 25 of the farms were sold at weaning time or shortly thereafter. The records for these calves end at that time. This change in the number of farms necessitates the use of a new figure on the average cost of a calf at weaning time for the farms that are continued in the tabulations that follow. This new figure, of neces-

sity, varies slightly in each of the groups from the figures presented in Tables 15 to 20, inclusive.

The various costs included in carrying a calf through the first winter until it is a yearling are shown in Tables 21 to 25, inclusive. The tables include the following charges: Cost of calf at weaning time (which here becomes the initial cost), feed, labor, equipment, interest, and miscellaneous charges. Under the heading "Miscellaneous charges" the following items of expense are included: Risk, insurance, taxes, and veterinary expenses. The item of risk amounts to 43 cents, which is 11 cents greater than the figure used in Report No. 111.[1] This figure is based on an average for 12,984 calves carried through the winter months. It is greater than for the preceding years because of the abnormally heavy loss from blackleg in the fall of 1915. The veterinary expense, which averaged 2 cents per head, was mostly for vaccination against blackleg. Interest has been figured on the basis of the average of the first and second inventory values of the animal. The cost at weaning time is used as the first inventory value. The second inventory value is obtained by adding to the cost at weaning time the cost of feed and labor. The other items of expense have been secured in the same manner as for the cows and bulls.

From the gross cost of production a manure credit has been deducted, this credit being assumed to be one-third of that allowed for the cows.

Cost of producing a yearling in the beef group.—The average net cost of carrying a calf until it is a yearling, for the 296 farms in the beef group (see Table 21), amounts to $51.29. This cost amounted to $55.08 in 1914 and $47.28 in 1916, the decrease being largely due to cheaper feeds. The initial cost, or cost at weaning time, which amounts to $36.85, is the greatest item of expense, constituting 70 per cent of the total gross cost ($52.89). The feed cost is $11.44, this charge being $2.81 less for the 1916 records than in 1914. This charge constitutes 21 per cent of the total, while labor, equipment, interest, and miscellaneous charges, taken together, amount to 9 per cent of the total.

TABLE 21.—*Cost of producing a yearling, based on the averages of 296 farms in the beef group for the three years, and by States, for 1916.*

State.	Number of farms.	Number of calves.	Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Other charges.	Gross cost.	Manure credit.	Net cost.
1916.											
Iowa	43	1,128	$37.19	$12.08	$1.91	$1.08	$1.25	$0.45	$53.96	$1.97	$51.99
Missouri	29	530	33.91	9.12	2.17	.81	1.19	.47	47.67	1.36	46.31
Nebraska	10	275	32.27	6.25	2.23	.78	1.09	.62	43.24	1.65	41.59
Kansas	24	662	30.99	8.34	2.00	.46	1.07	.65	43.51	1.14	42.37
Average for 1916	106	2,595	34.43	9.87	2.03	.83	1.18	.52	48.86	1.58	47.28
Average for 1915	99	2,721	37.09	11.98	2.18	.73	1.33	.42	53.73	1.61	52.12
Average for 1914	91	1,920	39.41	12.68	2.21	.62	1.40	.35	56.67	1.59	55.08
3-year average	296	7,236	36.85	11.44	2.13	.73	1.30	.44	52.89	1.60	51.29

[1] Report No. 111, p. 51.

The variation by States is shown for the year 1916. It ranges from $51.99 for 43 Iowa farms to $41.59 for 10 farms in Nebraska. The feed charges varied from $6.25 in Nebraska to $12.08 in Iowa.

Cost of producing a yearling in the dual-purpose group.—The average net cost of producing a yearling for 141 farms in the dual-purpose group (as shown in Table 22) is $33.18, varying from $25.13 in 1916 to $42.40 in 1914. As feed costs were very nearly the same ($8.43 in 1916 as against $9.85 in 1914), and as the other charges vary but little, the difference is almost entirely attributable to the difference in the costs of the calves at weaning time.

TABLE 22.—*Cost of producing a yearling, based on the averages of 141 farms in the dual-purpose group.*

Year.	Number of farms.[1]	Number of calves.[1]	Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Other charges.	Gross cost.	Manure credit.	Net cost.
1916	42	442	$13.58	$8.43	$2.74	$1.34	$0.58	$0.50	$27.17	$2.04	$25.13
1915	52	574	18.43	10.00	2.47	1.11	.75	.37	33.13	1.77	31.36
1914	47	484	29.41	9.85	2.55	1.21	1.07	.34	44.43	2.03	42.40
3-year average	141	1,500	20.64	9.48	2.58	1.21	.81	.40	35.12	1.94	33.18

[1] Totals.

The feed cost are about $2 less than those for the beef group, the dual-purpose calves having been somewhat less heavily grained. As these calves are in smaller herds the labor and equipment charges are a little greater than for the calves in the beef group.

Cost of producing a yearling in the mixed group.—For the 131 farms in the mixed group (see Table 23) the average cost of carrying a calf through the winter was $43.85, varying from $49.38 in 1914 to $38.34 in 1916. The difference ($11.04) is largely due to the difference in the cost of the calves at weaning time for the two years, as the feed and other costs do not vary greatly.

TABLE 23.—*Cost of producing a yearling, based on the average of 131 farms in the mixed group.*

Year.	Number of farms.[1]	Number of calves.[1]	Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Other charges.	Gross cost.	Manure credit.	Net cost.
1916	35	667	$26.66	$8.75	$2.23	$0.80	$0.96	$0.50	$39.90	$1.56	$38.34
1915	51	980	27.88	11.80	2.35	.81	1.03	.39	44.26	1.51	42.75
1914	45	914	33.71	12.24	2.50	.83	1.23	.32	50.83	1.45	49.38
3-year average	131	2,561	29.56	11.14	2.37	.81	1.08	.39	45.35	1.50	43.85

[1] Totals.

The feed costs are practically the same as for the calves in the beef group, being $11.14, as against $11.44 for the beef calves. The other charges do not vary appreciably from those for the beef group.

Cost of producing a yearling in the partially milked group.—The average net cost of producing a yearling on 84 farms in the partially milked group (as shown in Table 24) is $38.94. This amounted to $43.71 in 1914 as against $33.04 in 1916, a difference of $10.67. As in the preceding group, this difference is mostly due to the difference in the cost of the calves at weaning time, although in this group there is a difference of $4.57 in the winter feed bill. As previously stated, most of the records in this group were from Missouri and Kansas, where, during the winter of 1913–14, feed was scarce and expensive, while it was abundant and comparatively cheap in 1916.

TABLE 24.—*Cost of producing a yearling, based on the averages of 84 farms in the partially milked group.*

Year.	Number of farms.[1]	Number of calves.[1]	Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Other charges.	Gross cost.	Manure credit.	Net cost.
1916	27	429	$21.47	$8.30	$2.58	$0.89	$0.81	$0.50	$34.55	$1.51	$33.04
1915	14	204	23.00	9.88	2.52	.64	.87	.36	37.27	1.64	35.63
1914	43	472	27.49	12.87	2.71	.75	1.06	.34	45.22	1.51	43.71
3-year average	84	1,105	24.81	10.95	2.58	.78	.95	.40	40.47	1.53	38.94

[1] Totals.

The various items of expense involved in carrying a calf from weaning time in the fall until it is turned on pasture in the spring are approximately the same in this group as in the beef and mixed groups.

Cost of producing a yearling in the double-nursing group.—For 35 farms in the double-nursing group (see Table 25) the average cost of producing a yearling was $29.36. It was practically the same in 1915 and 1916 ($25.80 and $27.86, respectively). The charge is much higher for 1914, when the average cost was $42.13. The feed charges are about the same for each of the three years, and are a little less than those for the other groups, with the exception of the dual purpose.

TABLE 25.—*Cost of producing a yearling, based on the averages of 35 farms in the double-nursing group.*

	Number of farms.	Number of calves.	Cost at weaning time.	Feed.	Labor.	Equipment.	Interest.	Other charges.	Gross cost.	Manure credit.	Net cost.
1916	13	246	$15.85	$9.16	$2.24	$1.95	$0.65	$0.54	$29.49	$1.63	$27.86
1915	16	251	13.58	10.39	1.71	.89	.57	.36	27.50	1.70	25.80
1914	6	82	29.11	9.84	2.25	1.14	1.05	.32	43.71	1.58	42.13
3-year average	35	579	17.09	9.84	2.00	1.00	.68	.41	31.02	1.66	29.36

A COMPARISON OF THE COST OF PRODUCTION AND THE VALUE OF CALVES AND YEARLINGS.

In Table 26 a comparison is made between the cost and the sale or inventory value of the calves and yearlings for the five groups, excluding the baby-beef.

TABLE 26.—*The difference between the cost of production and inventory or sale value of calves and yearlings, by groups.*

Group.	Sold or inventoried at weaning time.				
	Number of head.	Average value.	Average cost.	Loss.	Gain.
Beef:					
1914	996	$31.93	$35.69	$3.76	.....
1915	555	36.11	33.56	.....	$2.55
1916	896	35.72	34.64	.....	1.08
Three years	2,447	33.42	34.80	1.38	.....
Dual purpose:					
1914	64	20.57	44.50	23.93	.....
1915	84	25.31	1.85	.....	23.46
1916	79	26.20	10.71	.....	15.49
Three years	247	24.30	17.90	.....	6.40
Mixed:					
1914	199	27.61	34.16	6.55	.....
1915	59	27.62	28.11	.49	.....
1916	68	32.86	28.62	.....	4.24
Three years	326	28.93	31.23	2.30	.....
Partially milked:					
1914	104	26.68	32.44	5.76	.....
1915	92	32.76	30.61	.....	2.15
1916	91	31.94	28.55	.....	3.39
Three years	287	29.11	30.64	1.53	.....
Double nursing:					
1914	5	30.00	41.00	11.00	.....
1915	3	30.00	21.26	.....	8.74
1916	8	35.00	36.07	1.07	.....
Three years	16	31.67	32.78	1.11	.....

Group.	Sold Jan. 1 to July 1.						Inventoried May 1.				
	Number of head.	Average date.	Average value.	Average cost.	Loss.	Gain.	Number of head.	Average value.	Average cost.	Loss.	Gain.
Beef:											
1914	206	Apr. 6	$44.35	$56.09	$11.74	.....	1,692	$38.17	$54.69	$16.52	.....
1915	26	Mar. 23	49.75	46.25	.....	$3.50	2,725	37.30	51.87	14.57	.....
1916	221	Mar. 6	44.08	48.27	4.19	.....	2,366	39.43	47.87	8.40	.....
Three years	453	Mar. 23	45.05	51.57	6.52	.....	6,783	38.31	51.29	12.98	.....
Dual purpose:											
1914	33	Mar. 7	33.90	32.03	.....	1.87	440	33.00	42.35	9.35	.....
1915	108	Mar. 15	33.18	34.54	1.36	.....	465	29.33	31.37	2.04	.....
1916	29	Mar. 1	34.62	22.37	.....	12.25	389	30.40	26.32	.....	$4.08
Three years	170	Mar. 10	33.65	31.48	.....	3.17	1,294	30.92	33.70	2.78	.....
Mixed:											
1914	30	Mar. 20	37.00	58.94	21.94	.....	903	35.93	48.95	13.02	.....
1915	77	Mar. 17	41.48	47.52	8.04	.....	872	31.95	43.24	11.29	.....
1916	16	Mar. 21	65.00	49.25	.....	15.75	620	30.05	38.17	3.12	.....
Three years	123	Mar. 19	44.06	51.65	7.59	.....	2,395	34.17	43.91	9.74	.....
Partially milked:											
1914	76	Apr. 13	40.29	43.64	3.35	.....	453	34.80	43.11	8.31	.....
1915	22	May 1	42.00	29.06	.....	12.94	182	37.39	35.63	.....	1.76
1916	42	Mar. 25	39.08	23.65	.....	15.43	372	36.75	34.20	.....	2.55
Three years	140	Apr. 9	40.19	35.84	.....	4.35	1,007	35.91	38.87	2.98	.....
Double nursing:											
1914	.....	.....	.....	.....	.....	.....	82	32.50	42.13	9.63	.....
1915	6	Mar. 1	51.00	31.08	.....	19.92	284	34.19	25.80	.....	8.39
1916	57	May 28	32.33	14.07	.....	1.26	190	32.71	27.92	.....	4.79
Three years	63	May 5	37.00	18.32	.....	18.68	556	33.37	29.42	.....	3.95

About one-fifth of all the calves in these five groups were sold at weaning time, or between September 1 and January 1. In 1914 the calves that were sold in the fall brought less than their cost of production. Many of these calves were produced on farms where the usual practice is to retain them on the farm and finish them as 2-year-olds, but because of an insufficient supply of winter feed it became necessary to sell them at a sacrifice. These losses ranged from $3.76 per head for 996 calves in the beef group to almost $24 for 64 calves in the dual-purpose group. In 1915 fewer calves were sold, as feed was more abundant. Of those sold, the calves in all except the mixed group showed a profit above expenses. In 1916 all of the calves sold at weaning time, except those in the double-nursing group, returned a profit. The latter showed a loss of $1.07.

Taking a three-year average, the calves in all excepting the dual-purpose group cost more than their sale or inventory value. This difference between the cost of production and the sale, or inventory value, ranged from $2.30 for the calves in the mixed group to $1.11 for those in the double-nursing group. The calves in the dual-purpose group showed a profit of $6.40 for the three-year average.

Only 949 of the calves were sold between January 1 and July 1, the farmers evidently recognizing the fact that this is an unprofitable time to sell. This is an insufficient number to justify the drawing of any definite conclusions. However, it may be noted that the calves in the beef and mixed groups sold at a loss, while in the remaining groups they sold for more than their cost of production.

The majority of the calves, 12,035 out of 16,307, were retained and turned on pasture about May 1, when their inventory value was taken. Those inventoried in the beef and mixed groups cost more to produce than their inventory value for each of the three years. The yearlings in the dual-purpose group showed a loss for the first two years, and those in the partially milked and double-nursing groups for the first year. The double-nursing group is the only one where the inventory value was greater than the cost of production for the three-year period. These calves show a deficit only for 1914. In the remaining groups the difference between the cost of production and the inventory value varied from $2.78 in the dual-purpose and $2.98 in the partially milked group, to $12.98 in the beef group.

The fact that there were so few sales in the spring months would seem to show that the farmers realize that it is not profitable to carry calves through the first winter unless they are also kept through the following summer. This is because at this time the calves, having charged against them all the expenses of the breeding herd as well as their own winter feed bill, have reached a point of greatest expense as compared with their selling prices. Had the records been continued on these calves until fall, so that advantage could have been

taken of the relatively cheap gains made on pasture, they would have made a much better financial showing.

The figures presented indicate that the calves in the beef group, where no milk credits were obtained, were the least profitable, while those in the mixed group, where only a part of the cows were milked, show nearly as great a loss. In the partially milked and dual-purpose groups the calves showed the small losses of $2.98 and $2.78, respectively. In the double-nursing group where one-half of the cows were milked, the remaining cows supporting two calves each, the calves showed a profit of $3.95. In this group the calves which had the advantage of the milk credits with a smaller cost for labor seemed to be the most profitable, although there are too few records to justify definite conclusions.

The yearlings in the beef group showed the greatest loss, which averaged $12.98. However, some of these animals were fed on rations containing considerable grain in order to get a big growth before they were turned on pasture. The aim in doing this was to finish them for the late fall or early winter market. This expense would naturally be greater than for the normal wintering of the calves, and would raise the average cost of wintering.

The calves in the dual-purpose group were relatively more profitable than those in all other classes except the double-nursing group. They were, however, of a considerably poorer quality, and many of them would need to be held for a longer period than those in the other groups before being fattened for beef.

COST OF GROWING BEEF ANIMALS.

CHAPTER II.

COST OF PRODUCING BEEF ANIMALS ON TWELVE WESTERN RANCHES.

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SOURCES OF DATA.

Twelve representative ranches in Oklahoma, Texas, Colorado, Montana, and South Dakota were visited by agents of the United States Department of Agriculture, and all figures carried on their books appertaining to the cost of operating their cattle business, including a complete inventory of land and equipment, were taken in detail. Eight of the ranches were producing young stock, which were marketed at ages varying from calves to four-year-olds. On the other ranches the cattle were usually purchased from producers as calves, yearlings, and two-year-olds, grazed for one or two seasons, and then fattened and shipped to market.

Since the figures do not in all cases extend over the same years and because of the small number of ranches included in the report, it was not considered advisable to average results for the 12 ranches. Each ranch is summarized separately, and the facts concerning the costs of production, the methods of arriving at costs, and the systems of production, are discussed separately. Special effort was made to get figures from stockmen's records and accounts on ranch operations over the five years 1913–1917. This was not always possible, and care is exercised in giving figures of cost to specify the years over which they apply.

With but one exception, Ranch No. 5, the ranch books were closed in the month of December. On this ranch the fiscal year ended June 30. In compiling the data the fiscal year of each ranch company was used in determining the yearly costs of all items. All of the yearly costs for each ranch were averaged to obtain the average figures used in all tables.

The feeds appearing on the books as purchased between the dates of January 1 and January 1 were considered as the yearly feed cost. The lack of yearly inventories of feed and supplies, together with

advance payments on supplies to be delivered after January 1 made it impracticable to compare one year with another, especially as regards feed, freight, and veterinary charges.

Drought conditions in Texas during 1916 and 1917, together with an accompanying increase in the price of feedstuffs, have in many instances necessitated expenditures for feeds more than treble the customary outlays. Labor, freight, and taxes are other items of expense which show the influence of general price advances and war conditions.

The pasture charge is based on the current rate of interest on an average acre valuation of land owned and grazed, and on the rental price paid for leased lands. The value of the land is based on its selling price per acre as grazing land. In some instances it was found that small portions of the ranches were being sold for farming purposes and were bringing a price dependent upon the land's adaptability for raising farm crops rather than upon its value for grazing. Particular care was exercised in appraising such land at what it would sell for as grazing land, with a view to placing the interest on its valuation as a pasturage charge.

Feed raised and fed on the ranch was charged at the cost of production. The feed purchased was charged at its purchase price plus the cost of transporting it to the ranch or feeding pens. In a few instances the freight and hauling of feed was included in the freight account, but generally this charge was thrown into the feed account.

Wages of help (other than that used in the office and what is generally called management help), the groceries, supplies for camp outfits, and household supplies, together with a horse labor charge, constitute the items under labor. The only charge made for cow ponies and ranch teams was an amount equal to the current rate of interest on the yearly valuation of necessary mares, cow ponies, and teams, since the feed these horses received is already included in the general feed account and charged directly against cattle.

A complete inventory was taken of ranch equipment, including such items as buildings, corrals, wells, tanks, fencing, and the like. In view of the marked increase in the price of building material, fencing, and well equipment, during recent years, an average valuation was placed on equipment according to 1915 price conditions. The equipment charge consists of three items: Interest on the average value of ranch equipment over the years considered, depreciation of this equipment, dependent upon its normal length of life, and cash upkeep expenditures necessary to keep it in usable condition or in good working order.

The freight charge is freight and express on incoming supplies, cattle, and, with some ranches, feed. This item of expense also

includes moving charges on cattle when moved for feeding and grazing. It does not include freight incurred in marketing cattle.

The administration charge includes the salaries of officers, superintendents, managers, the office force, the office material and supplies, the audit of records and accounts, legal advice, and advertising.

In the miscellaneous charges are placed such items as cattle association dues, personal travel for the purchase of stock, damages, killing prairie dogs and the like, as well as the miscellaneous and petty cash accounts.

OKLAHOMA.

Four ranches were visited in Oklahoma. Two of these were producing calves; the other two used their range to carry steers, purchased as coming one and two year olds, one season on grass before putting them into the beef pens to be fattened on cottonseed cake and roughage. The two ranches carrying breeding herds confined their operations to the production of steers for the feeder market, practically no animals on these ranches being fattened.

Interest rate on land and cattle money on the Oklahoma ranches was 7½ per cent per annum. On short-time loans it was occasionally necessary to pay a higher rate than this, but in view of the fact that the bulk of the cattle and land money was obtained for 7½ per cent, this interest rate is used for the Oklahoma ranchers.

RANCH NO. 1.

Ranch No. 1 is located in south central Oklahoma. It aims to carry approximately 2,000 cows for the production of feeder cattle. The manager endeavors to inventory these cows at their market value for beef production. The average value for the four years 1914–1917 for which figures were obtained was $67.50.

Heavy rains in the spring of 1914 resulted in a flood through a ravine where some of the cows were being wintered. This, coupled with the fact that there was a heavy loss in a shipment of Texas cows brought north in the fall of 1913 and put in with the rest of the herd, resulted in a 13.7 per cent death loss during the first year. It was not thought advisable to include the first year's losses in arriving at the average death among cows on this ranch, but rather to use the average death loss during the remaining three years, which was 5.3 per cent. A 5.3 per cent death loss may be considered normal. Four and one-half bulls were run with each one hundred cows. They cost $110 a head, and after four year's service sold for $77.50 apiece. The death loss among these bulls was 9.2 per cent.

The various costs of producing an 8-months-old calf, a short 2-year-old steer, and a 3-year-old steer on this ranch are shown in Tables 1 to 3.

TABLE 1.—*Cost of producing a calf, Ranch No. 1 (1914–1917).*

Cow cost (100 cows valued at $67.50 a head):		
Interest, 7½ per cent		$506.25
Death loss, 5.3 per cent		357.75
Pasture		326.62
Feed		375.66
Labor		105.93
Equipment		73.94
Freight		7.24
Veterinary		11.44
Miscellaneous		14.87
Taxes and insurance		46.54
Administration		18.75
Bull service (45 bulls valued at $110 a head):		
Interest at 7½ per cent	$37.13	
Depreciation (kept 4 years, sold for $77.50)	36.56	
Death loss, 9.2 per cent	45.54	
Feed and pasture	31.60	
Labor and other expenses	12.54	
		163.37
		2,008.36
Cost of calf at weaning time (calf crop, 57.3 calves per 100 cows on foot at weaning time, 8 months of age)		$35.05

TABLE 2.—*Cost of producing a 20-month-old steer, Ranch No. 1 (1914–1917).*

100 calves at $35.05 a head		$3,505.00
Cost of carrying 100 yearlings one year:		
Interest, 7½ per cent	$262.88	
Death loss, 5.1 per cent	178.76	
Pasture	326.62	
Feed	375.66	
Labor	105.93	
Equipment	73.94	
Freight	7.24	
Veterinary	11.44	
Miscellaneous	14.87	
Taxes and insurance	46.54	
Administration	18.75	
		1,422.63
Cost of 100 steers at 20 months of age, at ranch		4,927.63
Marketing expenses		290.00
Cost of one hundred 20-month-old steers at market		5,217.63
Cost of a 20-month-old steer at market		52.18

TABLE 3.—*Cost of producing a 3-year-old steer (32 months), Ranch No. 1.*

One hundred 20-months-old steers (at $49.28 a head) [1]		$4,927.63
Cost of carrying one hundred 2-year-old steers one year:		
Interest, 7½ per cent	$369.60	
Death loss, 5.1 per cent	251.33	
Feed and pasture	702.28	
Labor and other expenses	278.71	
		1,601.92
Cost of 100 steers at 32 months of age		6,529.55
Marketing expenses		290.00
Cost of one hundred 3-year-old steers at market		6,819.55
Cost per steer at market		68.20

RANCH NO. 2.

Ranch No. 2, which is located is southwestern Oklahoma, carries about 1,000 cows and follows the system of selling its steers as short 2- and 3-year-olds. A few heifers and cows were purchased during the year for which records were taken. Their purchase price and the inventory value of the cows inventoried January 1 averaged $50.

Four and four-tenths bulls were carried for each hundred cows. These bulls cost $100 each and when sold after an estimated service of four years brought $67 a head.

The death loss was estimated to be 3 per cent among bulls, and 5 per cent among all other classes of animals.

No attempt was made to count the calves at branding, but a yearly estimate of 56 per cent alive January 1 was made each season.

The various costs in producing an 8-months-old calf, a short 2-year-old, and a short 3-year-old, are shown in Tables 4 to 6.

TABLE 4.—*Cost of producing a calf, Ranch No. 2. (1915–16).*

Cow cost (100 cows valued at $50 a head):		
Interest, 7½ per cent		$375.00
Estimated death loss, 5 per cent		250.00
Pasture		498.29
Feed		469.29
Labor		118.01
Equipment		53.01
Freight		10.18
Veterinary		3.30
Miscellaneous		49.00
Taxes and insurance		4.39
Administration		19.54
Bull service (4.4 bulls valued at $100 a head)—		
Interest, 7½ per cent	$33.00	
Depreciation (kept 4 years and sold for $67)	36.30	
Death loss, 3 per cent	13.20	
Feed and pasture	42.57	
Labor and other expenses	11.33	
		136.40
Total cost of keeping 100 cows a year		1,986.41
Calf crop estimated 56 per cent on foot January 1.		
Cost of calf at weaning time (8 months old)		35.47

[1] See Table 2, cost of 100 steers at 20 months, at ranch.

TABLE 5.—*Cost of producing a 20-months-old steer, Ranch No. 2.*

100 calves at $35.47 a head		$3,547.00
Cost of carrying 100 yearlings one year:		
Interest, 7½ per cent	$266.02	
Estimated death loss, 5 per cent	177.35	
Pasture	498.29	
Feed	469.29	
Labor	118.01	
Equipment	53.01	
Freight	10.18	
Veterinary	3.30	
Miscellaneous	49.00	
Taxes and insurance	4.39	
Administration	19.54	
		1,668.38
Cost of 100 steers at 20 months of age, at ranch		5,215.38
Marketing expenses		285.00
Cost of one hundred 20-months-old steers at market		5,500.38
Cost per steer at market		55.00

TABLE 6.—*Cost of producing a 3-year-old steer (32 months), Ranch No. 2.*

One hundred 2-year-old steers at $52.15		[1] $5,215.38
Cost of carrying one hundred 2-year-old steers one year:		
Interest, 7½ per cent	$391.13	
Estimated death loss, 5 per cent	260.75	
Feed and pasture	967.58	
Labor and other expenses	257.43	
		1,876.89
Cost of 100 steers at 32 months of age		7,092.27
Marketing expense		285.00
Cost of one hundred 32-months-old steers at market		7,377.27
Cost per steer at market		73.77

RANCH NO. 3.

Ranch No. 3 is located in west-central Oklahoma. It carries steers, purchased as coming 1- and 2-year-olds, on grass for one season, and fattens them on cotton-seed cake and sorghum during the winter months. Approximately 1,500 steers are fattened annually. The various costs in handling such cattle are shown in Table 7.

[1] See Table 5, cost of 100 steers at 20 months, at ranch.

TABLE 7.—*Cost of grazing and finishing steers, Ranch No. 3 (1914–1917).*

Cost of 100 steers coming 1- and 2-year-olds		$4,217.00
Cost of carrying one hundred 1- and 2-year-olds one year:		
Interest, at 7½ per cent	$316.28	
Loss at 5 per cent	210.85	
Pasture	373.62	
Feed	1,218.26	
Labor	264.80	
Equipment	114.49	
Freight	11.18	
Veterinary	5.68	
Miscellaneous	75.30	
Taxes and insurance	15.05	
Administration	27.16	
Cost of carrying 100 steers 12 months		2,632.67
Marketing expenses of 100 steers		392.26
Total cost of 100 steers at market		7,241.93
Selling price of 100 steers		6,978.00
Loss on 100 steers		263.93
Loss per head		2.64

RANCH NO. 4.

Ranch No. 4 is located in south-central Oklahoma. It follows very closely the system of pasturing and feeding used on Ranch No. 3. Approximately 1,300 steers are handled annually, these being grazed for a season and then held on feed in the fattening pens of a period of four months. The various items of expense in handling these cattle are shown in Table 8.

TABLE 8.—*Cost of grazing and fattening steers on Ranch No. 4 (1915–16).*

Cost of 100 steers		$4,517.00
Cost of carrying 100 steers one year:		
Interest at 7½ per cent	$338.78	
Death loss, 3 per cent	135.51	
Pasture	797.57	
Feed	1,321.07	
Labor	166.90	
Equipment	153.71	
Veterinary	1.40	
Miscellaneous	24.88	
Taxes and insurance	43.63	
Administration	58.37	
Cost of carrying 100 steers one year		3,041.82
Marketing expenses		248.94
Total cost of 100 steers at market		7,807.76
Sales price per 100 steers		7,109.48
Loss on 100 steers		698.28
Loss per steer		6.98

TEXAS.

Seven ranches which operated exclusively in Texas were studied. Three were located in southeastern Texas, two in north central, and two in the Panhandle. (See figs. 1 and 2.)

The land valuations were carefully determined and were based on the present prices of grazing lands.

The rate of 8 per cent per annum was used in figuring interest charges on land and cattle. This is the prevailing rate on long-time loans on cattle and land in this State.

The size of the calf crop and the death losses on all but one ranch were ranch estimates. These estimates were based on the actual number of cattle gathered, after allowing for animals lost through straying.

RANCH NO. 5.

This ranch, which is located in southeastern Texas, produces about 5,000 calves annually. The pasture land owned by the company was valued at $4.84 an acre. The pasture charge on this land was based on this investment while the charge for the leased lands was their rental price. The ranch is stocked at the rate of 22½ acres to each yearling animal or older.

It was not possible to obtain marketing expenses on all of the stock shipped, but the figures obtained show that this charge would average about $4 for a 2-year-old-steer. The cost of producing a calf at 12 months of age, a 2-year-old steer, and a 3-year-old steer are shown in the following tables, the figures presented being an average for the five years 1913–1917.

The various items of expense in producing yearlings, 2-year-old, and 3-year-old steers are shown in Tables 9 to 11.

TABLE 9.—*Cost of producing a yearling, Ranch No. 5 (1913–1917).*

Cost of keeping 100 cows (valued at $60 a head):		
Interest at 8 per cent		$480.00
Estimated death loss, 3 per cent		180.00
Pasture		715.99
Feed		205.53
Labor		111.11
Ranch expenses		281.47
Freight		77.95
Taxes and insurance		62.23
Administration		36.25
Bull service (5.9 bulls at $164 a head):		
Interest, 8 per cent	$77.41	
Estimated death loss, 3 per cent	29.03	
Depreciation (kept 4 years, selling for $98)	97.35	
Feed and pasture	54.37	
Labor and other expenses	33.57	
		291.73
		2,442.26
Estimated calf crop, 52 living calves per 100 cows, at 12 months of age.		
Cost of calf at 12 months of age		46.97

FIG. 1.—Partial view of cattle on one of the Texas Panhandle ranches, showing some of the cattle and the supply of winter feed on hand.

FIG. 2.—Companion picture to figure 1, joining it on the right.

TABLE 10.—*Cost of producing a 2-year-old steer, Ranch No. 5 (1913–1917).*

Cost of 100 yearlings at 12 months ($46.97 per head)		$4,697.00
Cost of carrying 100 yearlings one year:		
Interest at 8 per cent	$375.76	
Death loss at 3 per cent	140.91	
Pasture	715.99	
Feed	205.53	
Labor	111.11	
Ranch expenses	281.47	
Freight	77.95	
Taxes and insurance	62.23	
Administration	36.25	
		2,007.20
Cost of one hundred 2-year-old steers (24 months old)		6,704.20
Cost per steer		67.04

TABLE 11.—*Cost of producing 3-year-old steers, Ranch No. 5 (1913–1917).*

One hundred 2-year-old steers ($67.04 a head)		$6,704.20
Cost of carrying one hundred 2-year-old steers one year:		
Interest, 8 per cent	$536.32	
Death loss, 3 per cent	201.12	
Feed and pasture	921.52	
Labor and other expenses	569.01	
		2,227.97
Cost of one hundred 3-year-old steers (36 months)		8,932.17
Cost per steer		89.32

RANCH NO. 6.

Ranch No. 6, which is also located in southeastern Texas, produces approximately 1,000 calves yearly. It maintains 18 acres of pasture for each animal other than calves. The value of grazing land as carried on the ranch books was the acquirement value. As this acquirement value was not believed to be comparable to the land's present worth, a valuation of $5 per acre was used in getting the pasturage cost. The various costs involved in producing calves, short 2-year-olds, and 3-year-old steers, are shown in Tables 12 to 14.

TABLE 12.—*Cost of producing a calf, Ranch No. 6 (1913–1917).*

Cost of keeping 100 cows (valued at $55 a head) a year:	
Interest, 8 per cent	$440.00
Death loss, 3 per cent, estimated	165.00
Pasture	726.28
Feed	381.59
Labor	122.74
Ranch expenses	278.43
Administration	71.49

Cost of keeping 100 cows (valued at $55 a head) a year—Continued.		
Bull service (7.1 bulls valued at $90 a head):		
Interest	$51.12	
Death loss, 3 per cent, estimated	19.17	
Feed and pasture	78.66	
Labor and other expenses	33.56	
		$182.51
		2,368.04
Calf crop, 46.3 per cent on foot at eight months of age.		
Cost of calf at weaning time		51.15

TABLE 13.—*Cost of producing a 20-month-old steer, Ranch No. 6 (1913–1917).*

Cost of 100 calves (8 months old) at $51.15 a head		$5,115.00
Cost of carrying 100 yearlings one year:		
Interest, 8 per cent	$409.20	
Death loss, 4 per cent	204.60	
Pasture	726.28	
Feed	381.59	
Labor	122.74	
Ranch expenses	278.43	
Administration	71.49	
		2,194.33
Cost of steers at 20 months of age, at ranch		7,309.33
Marketing expenses		400.00
Cost of one hundred 20-months-old steers at market		7,709.33
Cost per steer		77.09

TABLE 14.—*Cost of producing a 3-year-old steer, Ranch No. 6 (1913–1917).*

Cost of one hundred 20-months-old steers at $73.09 a head		[1] $7,309.33
Cost of keeping one hundred 2-year-old steers one year:		
Interest, 8 per cent	$584.72	
Death loss, 4 per cent, estimated	292.36	
Feed and pasture	1,107.87	
Labor and other expenses	472.66	
		2,457.61
Cost of 100 steers at 32 months of age		9,766.94
Marketing expenses		400.00
Cost of one hundred 32-months-old steers at market		10,166.94
Cost per steer		101.67

RANCH NO. 7.

Ranch No. 7 is located in north-central Texas. It carries about 12,000 high-grade cows, which are valued at $80 a head. This ranch makes a specialty of producing calves which are sold direct to corn-belt feeders, a large percentage of which are fattened as baby beef. Some stock is also maintained for the production of breeding animals. The figures obtained were, however, confined to the cost of producing feeder animals.

[1] See Table 13, total cost at ranch.

Some of the land on this ranch is suitable for farming purposes, and is consequently valued at $60 an acre, its sale price. As this land is included in the pastures along with the rough grazing lands, an arbitrary value of $5 an acre was assumed as the value on which to base pasture charges. This figure is comparable with the value of other grazing lands in that general vicinity. The ranch is stocked at the rate of 27 acres to each animal one year old and older.

The bulls used cost $200 each. They are kept for an average of 4 years each and sell for about $56 each, their block value, this being an exceptionally high depreciation.

The cost of producing a feeder calf on this ranch is shown in Table 15.

TABLE 15.—*Cost of growing calves on Ranch No. 7 (1913–1917).*

Cost of keeping 100 cows (valued at $80 a head):		
Interest, 8 per cent		$640.00
Death loss, 5 per cent, estimated		400.00
Pasture		1,052.19
Feed		125.74
Labor		237.42
Equipment		280.81
Freight		7.74
Veterinary		1.82
Miscellaneous		60.16
Taxes and insurance		91.09
Administration		130.69
Bull service (7.9 bulls, valued at $200 a head):		
Interest, 8 per cent	$126.40	
Depreciation (kept 4 years, sold for $56 a head)	284.40	
Death loss, 5 per cent, estimated	79.00	
Feed and pasture	93.06	
Labor and other charges	63.97	
		646.83
		3,674.49
Calf crop 80.9 per cent branded, with estimated 5 per cent death loss on calves to Jan. 1, leaving 75.9 per cent on foot.		
Cost of calf to weaning time		48.41

RANCH NO. 8.

Ranch No. 8 is located in the Panhandle of Texas. It maintains about 2,500 cows for the production of calves. In addition approximately 10,000 steers are purchased annually and run for one year. All of the steers raised on this ranch, as well as those purchased, are sold to Kansas graziers, free on board cars at nearest shipping point to ranch, the cattle usually being contracted for in advance. This means that the ranch does not find it necessary to pay marketing charges except on "cut backs" and discarded breeding stock.

Twenty-four and two-tenths acres of owned and leased pasture were used per head by animals as yearlings or over. The land owned by the ranch company was valued at its acquirement value, which averaged $6.20 per acre. The leased land was charged at the rental price paid.

The various costs involved in growing calves coming, 2-year-old and 3-year-old steers, are shown in Tables 16 to 18.

TABLE 16.—*Cost of growing calves, Ranch No. 8 (1914–1917).*

Cost of keeping 100 cows one year (valued at $65 each):		
Interest, 8 per cent		$520.00
Death loss, 2 per cent, estimated		130.00
Pasture		737.12
Feed		216.30
Labor		162.92
Equipment		107.27
Freight		71.32
Veterinary		7.71
Miscellaneous		42.32
Taxes and insurance		82.64
Administration		14.06
Bull service (6.7 bulls valued at $90 a head):		
Interest, 8 per cent	$48.24	
Death loss, 2 per cent, estimated	12.06	
Feed and pasture	63.88	
Labor and other expenses	32.71	
		156.89
		2,248.55
Calf crop, 58.6 per cent on foot at 8 months of age.		
Cost of calf at weaning time		38.37

TABLE 17.—*Cost of producing 20-months-old steers, Ranch No. 8 (1914–1917).*

Cost of 100 calves at 8 months of age (at $38.32 each)		$3,837.00
Cost of keeping 100 yearlings one year:		
Interest, 8 per cent	$306.96	
Death loss, 3 per cent, estimated	114.93	
Pasture	737.12	
Feed	216.30	
Labor	162.92	
Equipment	107.27	
Freight	71.32	
Veterinary	7.71	
Miscellaneous	42.32	
Taxes and insurance	82.64	
Administration	14.06	
		1,863.55
Cost of one hundred 20-months-old steers		5,700.55
Cost per steer		57.01

TABLE 18.—*Cost of producing a 3-year-old steer (32 months), ranch No. 8 (1914–1917).*

Cost of one hundred 20-months-old steers		$5,700.55
Cost of keeping one hundred 2-year-old steers one year:		
Interest, 8 per cent	$456.04	
Death loss, 2 per cent, estimated	113.88	
Pasture	737.12	
Feed	216.30	
Labor	162.92	
Equipment	107.27	
Freight	71.32	
Veterinary	7.71	
Miscellaneous	42.32	
Taxes and insurance	82.64	
Administration	14.06	
		2,011.58
Cost of producing one hundred 32-months-old steers		7,712.13
Cost per steer		77.12

RANCH NO. 9.

Ranch No. 9 is also in the Texas Panhandle. It produces about 1,800 calves annually. In addition to the growing of stock cattle, this ranch also bought yearlings and 2-year-old cattle in 1916 and 1917, which were held for a while and then sold to Kansas graziers.

Twenty-three and a half acres of pasture land were allowed for each yearling or older animal. In this report the ranch land was priced at its acquirement value, which was $4 an acre. This value may seem low when compared with the value used for ranch No. 8. However, the present condition of the pasture, together with the expenditures for feed, would indicate that the land is pastured a little heavily. The leased land was charged at its annual rental value.

The various costs in producing calves and 2-year-olds on this ranch are shown in Tables 19 and 20.

TABLE 19.—*Cost of producing a calf on Ranch No 9 (1913–1917).*

Cost of keeping 100 cows (valued at $65 each) for one year:	
Interest, 8 per cent	$520.00
Estimated death loss, 5 per cent	325.00
Pasture	669.65
Feed	303.94
Labor	154.64
Equipment	76.83
Freight	17.70
Veterinary	1.89
Miscellaneous	7.69
Taxes and insurance	50.10
Administration	54.43

Cost of keeping 100 cows (valued at $65 each) for one year—Continued.		
Bull service (5.6 bulls valued at $218 a head):		
Interest, 8 per cent	$97.66	
Death loss, 3 per cent	36.62	
Depreciation	193.20	
Feed and pasture	54.52	
Labor and other charges	20.34	
		$402.34
		2,584.21
Calf crop 55.9 per cent on foot at 8 months of age.		
Cost of calf at weaning time		46.23

TABLE 20.—*Cost of producing a 20-months-old steer, Ranch No. 9 (1913–1917).*

Cost of 100 calves at 8 months of age ($46.23 a head)		$4,623.00
Cost of carrying 100 yearlings one year:		
Interest	$369.84	
Death loss, 5 per cent	231.15	
Pasture	669.65	
Feed	303.94	
Labor	154.64	
Equipment	76.83	
Freight	17.70	
Veterinary	1.89	
Miscellaneous	7.69	
Taxes and insurance	50.10	
Administration	54.43	
		1,937.86
Cost of one hundred 20-months-old steers		6,560.86
Cost per steer		65.61

RANCH NO. 10.

This ranch is located in southeastern Texas and near the Mexican border. It handles Mexican cattle, some of which are purchased very cheaply. These are usually bought as 2-year-olds and are held for a year or more on grass and then shipped to market.

All of the grazing lands used by the company are leased or rented, so that the pasture charge in the figures presented is the amount actually paid out. The cost of carrying these cattle for one year is shown in Table 21.

TABLE 21.—*Cost of carrying yearling and 2-year-old steer on Ranch No. 10 (1913–1917).*

100 steers, average purchase $30.22 a head		$3,022.00
Cost of carrying 100 steers one year:		
Interest at 8 per cent	$241.76	
Death loss, 3 per cent	90.66	
Feed	138.73	
Pasture	305.50	
Labor	78.54	
Equipment	51.19	
Veterinary	5.07	
Miscellaneous	7.55	

Cost of carrying 100 steers one year—Continued.		
Taxes and insurance	$29.05	
Administration	13.82	
		$961.87
Total cost of 100 steers on the ranch		3,983.87
Marketing expenses		379.00
Cost of 100 steers at market		4,362.87
Sale price of 100 steers at market		5,749.78
Profit		1,386.91
Profit per head		13.87

RANCH NO. 11.

Ranch No. 11 is located in north central Texas. It makes a business of purchasing yearling steers and carrying them for a year. The 2-year-olds are then shipped north to Oklahoma to be fed out. As but few of these cattle are shipped to market direct, the sales price shown in Table 22 is the net return at the ranch from all the animals sold.

TABLE 22.—*Cost of producing 2-year-old steers, Ranch No. 11 (1915–16).*

Cost of 100 yearling steers, at $40.06 a head		$4,006.00
Cost of carrying 100 yearlings one year:		
Interest, 8 per cent	$320.48	
Death loss, 2.4 per cent	96.14	
Pasture	585.42	
Feed	276.92	
Labor	95.51	
Equipment	142.66	
Veterinary	18.39	
Taxes and insurance	23.87	
Miscellaneous	19.96	
Administration	21.63	
		1,600.98
Cost of one hundred 2-year-old steers		5,606.98
Net sale price of 100 steers, at $48.10 per head		4,810.00
Loss		796.98
Loss per steer		7.97

RANCH NO. 12.

Ranch No. 12 is a group of ranches operating in Texas, Colorado, Montana, South Dakota, and Canada, all being operated from a central office.

The ranches in Texas, Colorado, and Montana are mostly owned, while the lands in South Dakota and Canada are leased. The South Dakota ranch was only operated during the first two years for which figures were obtained. A valuation, based on 1915 figures, of $5 an acre was placed by the ranch company on all lands owned and grazed.

The Canadian ranch is used exclusively for the summer grazing of 3- and 4-year-old steers. The other ranches, taken together, carry about 25,000 cows for the production of calves.

The heavy "tax and insurance" charge paid on the cattle is due to the fact that the home office of the company is located in great Britain. This charge increased from $82.03 per hundred head in 1913 to $244.42 per hundred head in 1917. The ranches are treated as a unit in the figures presented in Tables 23 to 25.

TABLE 23.—*Cost of producing a calf on Ranch No. 12 (1913–1917).*

Cost of keeping 100 cows (valued at $65 a head) for one year:		
Interest, 8 per cent		$520.00
Death loss, estimated		650.00
Pasture		506.87
Feed		85.02
Labor		86.00
Equipment		52.98
Freight		83.19
Veterinary		4.37
Supplies		25.83
Miscellaneous		28.99
Taxes and insurance		166.98
Administration		27.51
Bull service (5.1 bulls, valued at $200 a head)—		
Interest, 8 per cent	$81.60	
Death loss, 7 per cent, estimated	71.40	
Depreciation (kept 4 years and sold for $66.50)	170.21	
Feed and pasture	30.19	
Labor and other expenses	24.27	
		377.67
		2,615.41
Calf crop 59.4 per cent on foot at 8 months of age.		
Cost of calf at weaning time (8 months old)		44.03

TABLE 24.—*Cost of producing 20-months-old steers, Ranch No. 12 (1913–1917).*

Cost of 100 calves at 8 months old at $44.03 a head		$4,403.00
Cost of carrying 100 yearlings a year:		
Interest, 8 per cent	$352.24	
Death loss, 10 per cent, estimated	440.30	
Feed and pasture	591.89	
Labor and other expenses	475.85	
		1,860.28
Cost of one hundred 20-months-old steers		6,263.28
Cost per steer		62.63

TABLE 25.—*Cost of producing 3-year-old steers, Ranch No. 12 (1913–1917).*

Cost of one hundred 20-months-old steers at $62.63		$6,263.28
Cost of carrying 100 two-year-old steers:		
Interest, 8 per cent	$501.04	
Death loss, 10 per cent, estimated	626.30	
Feed and pasture	591.89	
Labor and other expenses	475.85	
		2,195.08
Cost of one hundred 32-months-old steers		8,458.36
Cost per steer		84.58

COST OF FATTENING CATTLE

Prepared by The United States Department of Agriculture
Office of Farm Management, W. J. Spillman, Chief
Bureau of Animal Industry, J. R. Mohler, Chief

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PREFACE.

The following report on the cost of fattening beef cattle was prepared by the Office of Farm Management, United States Department of Agriculture, in 1918, covering investigations relative to the cost of producing beef cattle in the Corn Belt for several periods prior to that year. The inquiry brought out the kinds and quantities of feeds used, the amount of labor performed on the cattle, the equipment required, and the various other items of expense that enter into the cost of finishing cattle for market.

The report is divided into three parts:

Chapter I, "Fattening Beef Animals on Corn-Belt Farms," includes a study made on 188 farms of the cost of fattening 2-year-old steers, yearlings, and baby-beef animals. It also includes a three-year study on the cost of finishing calves as baby-beef animals on the farms where they were produced. The figures presented were obtained by field agents who personally visited the farmers and entered on specially prepared blanks the data obtained from them.

Chapter II, "A Five-Year Study on the Cost of Finishing Cattle in Illinois," presents results of an investigation being made by the University of Illinois College of Agriculture on the cost of finishing cattle on a few selected farms in that State. The figures for these farms were obtained by accurate cost-accounting methods.

Chapter III, "Five-Year Results in Finishing Cattle on Twenty Corn-Belt Farms," presents figures on the cost of fattening cattle on 20 farms that feed on an extensive scale. The figures for these farms were taken directly from farm books, which were for the most part detailed and accurate.

As there was not sufficient time to study all of the different methods of fattening, these investigations have been confined to the types of fattening that are most commonly followed in the Corn Belt, where the majority of the cattle are finished on a ration in which corn plays the leading part.[1]

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[1] Cattle, of course, are fattened in many localities in the United States other than the Corn Belt, but not in such large numbers. In these other localities the number of cattle fattened and the manner of handling them depends largely on the quantity and kinds of feed available, and on market conditions. Principal among the methods of finishing cattle are the following:

1. The roughing of cattle through the winter and grazing them on pasture the following summer. This practice is common in regions having luxuriant blue-grass pastures, as in the limestone sections of Virginia and Kentucky. Many cattle are similarly finished in that part of eastern Kansas, where the pastures are underlain by limestone.

2. The finishing of cattle on cotton-seed meal, using cotton-seed hulls or some cheap hay as a roughage. This method is extensively followed in the Cotton Belt, but owing to present high price of cotton-seed meal it has temporarily been abandoned.

3. The finishing of cattle for western markets on alfalfa hay in irrigated valleys of the Pacific Coast States. Many cattle are also fattened on native hay in Montana and Wyoming.

4. Fattening on beet pulp and alfalfa hay in irrigated sections of the West.

5. The utilization of by-products such as distillery slop and cannery refuse in the finishing of cattle.

The practice of finishing cattle on corn dates back to the beginning of the development of the Corn Belt. It was found that when cattle that were being driven from the Western ranges to the Eastern markets were held over and fed corn for a few months they made very profitable gains. At first this finishing was largely in the hands of drovers who were taking the cattle through to the Eastern markets, or in the hands of speculators who bought the cattle from the drovers or direct from the Western ranges. These men rented feed yards at convenient places, and purchased the corn and necessary roughages from the local farmers. As cattle feeding was not only lucrative, but also furnished an excellent market for corn and rough feeds, as well as converting these products into manure with which to maintain fertility on their land, the farmers soon began feeding. As the number of farmers who entered the business increased, the early profits decreased to a point where the speculators, who were unable to compete with the farmers, gradually dropped out.

At present cattle feeding is largely in the hands of farmers who feed one or more carloads of cattle in order to consume large amounts of roughage such as stalks, straw, and hay, which can best be utilized by feeding them to cattle and, as above suggested, to convert these by-products into manure with which to maintain fertility. In itself cattle feeding is not considered very remunerative, but it fits in excellently with the production of pork and provides a gainful winter occupation. It is very frequently the case that although the steers considered alone may lose money, the hogs following are so remunerative that the combined enterprise when averaged over a period of years proves profitable. For these reasons the average farmer is willing to feed cattle on a very low margin so long as it will furnish him with a satisfactory market for his farm products.

In recent years the prices of cattle and of feeds have been very high. These high prices, together with the heavy market fluctuations that frequently occur, have made feeding a precarious business. The instability of the market has caused many farmers to discontinue feeding or greatly to curtail their feeding operations. Not only does the market vary according to seasonal demands and the daily demand and supply, but there are numerous sudden changes due to meat boycotts, strikes, droughts, and numerous other unforeseen factors. While the large producers who carefully study the market can usually avoid the seasonal variations, and can to some extent avoid the daily fluctuations, none are able to tell when a sudden slump is coming. Moreover, the average farmer who feeds but one or two carloads of cattle to utilize the by-products of his farm can not become a close student of market conditions. Unless there is some degree of stability about the market he must change his type of farming and discontinue cattle feeding.

The data presented in Chapters II and III of this report show that cattle feeding for the years 1912 to 1916 was not very remunerative. The feeding year 1916–17 was, on the other hand, one of the most profitable known in recent times. This fact is borne out by the data presented in Chapter I of the report. The feeding year 1917–18, on the other hand, proved disastrous, owing to the fact that the feeders, in order to get their usual supply of cattle, were obliged to bid against the packers and to pay unusually high prices. While many of them felt that the prices were too high to justify feeding, they needed the cattle in order to save the vast quantities of soft corn. They also felt it a patriotic duty to continue their cattle-feeding operations as usual in spite of unfavorable economic conditions, and hoped for a much greater margin or spread than they received.

It should be borne in mind that the cost figures presented in this report are applicable only under the feeding conditions and the feed and market price levels that existed during the period covered by each section of the report. Corn at the present time (1919) sells at over two and one-half times its average market value for the years 1912 to 1917; while other small grains and the forages are about double in value. Of the five feeding seasons of 1912–13 to 1916–17, inclusive, three were seasons of low feed and other production costs, starting in the fall of 1913 and lasting into the spring of 1916. In 1916–17 prices recovered rapidly, and market changes since that season have been steadily upward. The rapid increase in the market values of farm feeding stuffs since the season of 1916–17 renders the survey material in Chapter I, though covering a comparatively recent season, of little value other than to show costs for that one season. One is therefore not warranted in drawing conclusions from this report as to the present costs of fattening cattle, since the figures presented do not depict the conditions which obtain under the existing price levels and present feeding practice.

Although county and State boundaries are used as a means of territorial demarcation in the association and summarization of cost figures, it is not to be assumed that the figures obtained are representative of the costs throughout a State or even a county. They are the costs upon the specific, representative farms that furnished the data. Care is exercised to describe in some detail the systems of feeding followed in the several sections visited and by the individual feeders furnishing data.

COST OF FATTENING CATTLE.

CHAPTER I.

COST OF FATTENING BEEF ANIMALS ON CORN-BELT FARMS.

By J. S. COTTON, *Agriculturist, Office of Farm Management;* EDMUND H. THOMPSON, *Scientific Assistant in Beef Cattle Investigations, Bureau of Animal Industry,* and JAY WHITSON, *Scientific Assistant, Office of Farm Management.*

This report includes a study of the methods and costs of fattening cattle on 188 farms in the Corn Belt. It shows the cost involved in the finishing of 158 droves of 2 and 3 year old cattle, 47 droves of yearlings, and 33 droves of calves that were fattened as baby beef. These droves include 9,541 2-year-olds, 1,530 yearlings, and 1,135 baby beeves. The report also includes a three-year study on the cost of finishing calves on farms that make a practice of growing and fattening their own baby-beef animals. The record for the 125 droves so fattened begins with the cost of the calves at the time they were weaned.[1]

METHODS OF OBTAINING INFORMATION.

The records used in the tabulations were obtained by experienced field men who personally visited the farmers and obtained directly from them the information concerning their feeding operations. Whenever possible, the figures were taken from books. Where books were not kept, the figures are based on the farmers' estimates. These estimates are, however, quite accurate, as the average feeder who has been in the business for a number of years knows approximately how much corn he feeds a steer daily, how long it takes to get that steer on full feed, and the number of days on feed. The farmer also is able to estimate very closely the total amount of roughage fed, so that the estimates of the quantity of feeds used are usually very nearly as accurate as the book accounts.

[1] An investigation concerning the cost of producing baby beef has been conducted during the past four years. The first part of that investigation, which deals with the cost of raising these calves to weaning time, is included with the report entitled "A Three-Year Study on the Cost of Producing Beef Animals in the Corn-Belt States." The second part of that investigation, which deals with the cost of carrying these calves from weaning time until marketed, will be found under a separate heading at the end of the article.

In cases in which the cattle were bought at one of the principal markets, a copy was made of the original purchase statement furnished the farmer by the commission firm who sold the cattle. If the cattle were sold on the market, a commission firm's statement showing the number of steers sold, their weight, value per hundredweight, total value, cost of marketing, and the net returns was obtained. If the farmer did not have such a statement, these figures were taken directly from the books of commission firms who sold the cattle.[1]

The records obtained are mostly for cattle sold during the early winter of 1916 and the calendar year 1917—that is, cattle that were purchased in the summer and fall of 1916, and finished and sold that winter or the following spring and summer. It also includes a few droves bought in the summer and fall of 1917 and sold that winter after a short feed. A few of the cattle concerning which records were obtained were purchased in the fall of 1916 as yearlings and were held over and finished on corn in the fall or winter of 1917.

ECONOMIC SITUATION.

The feeding year 1916–17 was an unusually profitable one. The farmers laid in their supply of feeders in the fall of 1916 at prices very little above the average. By the spring of 1917, when these cattle went to market, the entire economic situation had changed. The allied nations were in need of vast supplies of meat, and the shortage of shipping facilities made it difficult to draw on Argentina or on other distant countries for their meat supplies. It thus became necessary for the United States to fill this demand. This situation naturally resulted in a rapid advance in prices for all meat commodities, so that the men who were feeding were doing so on a rapidly rising market. This movement was intensified by the fact that a short crop of corn kept many of the feeders out of business or curtailed their operations so that the demand for prime cattle was relatively great as compared with the supply. Not only was there a rapid advance in the price of beef, but there was an equivalent rise in the value of pork, so that the hogs following the cattle were unusually profitable.

The farmers who sold their cattle in the early spring of 1917 realized unusually large profits. On the other hand, those who held their cattle over to be fed during the late spring or early summer of 1917 were compelled to feed unprecedentedly high-priced corn. To meet this condition, many feeders found it necessary radically to change their methods of feeding or to ship their cattle before they were fully fattened. Many of those who were obliged to purchase much of this high-

[1] Thanks are due to the many farmers who assisted in making this report possible. Thanks are also due the various commission firms who gave much valuable assistance in verifying the sales statements, and also in giving information about feeding areas to be visited.

priced grain sold at a loss. Other farmers who had grown their own corn made a large profit on the corn, although on paper the cattle showed a loss when the corn was charged at the market price.

The cattle that were bought during the fall of 1917 were laid in at very high prices with the hope that the market would continue to rise sufficiently to allow the feeders their necessary margin. The hoped-for rise in price did not occur, however, before most of the cattle were marketed. Many of the cattle were also bought on the assumption that corn would be cheaper than proved to be the case. As a consequence, very heavy losses were incurred for the cattle that were finished for market in the winter of 1917–18.

SOURCES OF DATA.

The regions selected for study were as follows:

1. Burt County, Nebraska.
2. Pottawattamie County, Iowa.
3. Eastern Iowa (Cedar and Washington Counties).
4. Clinton County, Missouri.
5. Saline County, Missouri.
6. Carroll County, Missouri.

It was originally planned to include one county from Kansas, but because of the failure of the corn crop in 1916 there was practically no feeding in that State during the winter of 1916–17.

NEBRASKA.

Records were obtained on a total of 72 droves from 49 farms in Burt County, Nebraska. The distribution of these records is shown in Table 1.

TABLE 1.—*The number of 2-year-old cattle, yearlings, and baby beeves on which records were obtained for the six districts.*[1]

District.	2-year-old cattle.				Yearlings.			Calves.		
	Number of farms.	Number of droves.	Total cattle.	Average number of drove.	Number of bunches.	Total cattle.	Average number per bunch.	Number of droves.	Total cattle.	Average number per drove.
Burt County, Nebr.	49	44	1,264	29	18	360	28	15	454	30
Pottawattamie County, Iowa	37	32	1,138	36	13	472	36	.....	.....	.....
Eastern Iowa	28	20	1,177	59	9	209	23	.....	.....	.....
Total Iowa	65	52	2,315	45	22	681	31	10	250	25
Clinton County, Mo.	26	26	2,777	107	.....	.....	.....	.....	.....	.....
Saline County, Mo.	30	28	2,695	96	.....	.....	.....	.....	.....	.....
Carroll County, Mo.	18	8	490	61	.....	.....	.....	.....	.....	.....
Total Missouri	74	62	5,962	92	12	489	41	8	431	54
Total of all districts	188	158	9,541	60	47	1,530	33	33	1,135	34

[1] Exclusive of baby-beef animals fattened on 124 farms on which they were raised.

Burt County borders on the Missouri River, and is about halfway between Omaha and Sioux City, two of the leading stock markets. The facilities for shipping to either of these markets are excellent. According to the 1910 census the average size of farms in this county is 188 acres. The leading crops are corn, oats, and alfalfa. There is a considerable acreage in pasture and prairie hay, although during recent years much of the area previously devoted to these has been put under cultivation.

The 49 farms visited averaged 275 acres in area. They were valued at a little over $56,000 per farm, the valuation ranging from $36,000 for the smallest farm to over $100,000 for each of three very large farms. Thirty-seven per cent of the land in these farms (see Table 2) was in corn, 17 in hay, and 24 in pasture.

TABLE 2.—*Average size and value of the farms visited and the proportion of each in pasture, corn, small grain, and hay, for the six districts.*

District.	Number of farms.	Size of farms.	Proportion of farm in—				Average value of farms.
			Pasture.	Corn.	Small grain.	Hay.	
		Acres.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	
Burt County, Nebr.	49	275	24	37	18	17	$56,000
Pottawattamie County, Iowa	37	245	29	38	11	12	47,000
Eastern Iowa	28	246	35	37	13	12	55,000
Clinton County, Mo.	26	493	42	32	9	10	76,000
Saline County, Mo.	30	455	35	29	15	4	81,000
Carroll County, Mo.	18	400	50	17	8	21	41,000

Cattle feeding is extensively followed in Burt County, it being estimated that in the vicinity of Oakland, where the majority of the records were taken, at least one-half of the farmers feed one or more carloads each year, primarily as a means of marketing their alfalfa and a part of their corn. The cattle are fed in comparatively small lots.

Most of the cattle are 2- or 3-year-old western steers, which are purchased on the Omaha market in the fall months. They are put on feed as quickly as possible after new corn is ready, and are fed for a period of from two to six months, depending on their quality and the condition of the market. Some farmers buy middle-weight cattle and run them on pasture and stalk fields during the fall. These cattle are put on feed about Christmas time and are marketed in the early spring. Still others buy yearlings and calves, which are carried through the winter on a light grain ration. They are put on full feed in the spring and are marketed in early summer, generally without being turned on pasture.

IOWA.

A total of 37 farms were visited in Pottawattamie County and part of Shelby County, Iowa. The Missouri River forms the western

boundary of Pottawattamie County, and Council Bluffs, the county seat, is just across the river from Omaha. Near the river the land is level; a short distance back from the river the land is sharply broken, gradually becoming smoother as one travels eastward. The soil belongs to the Missouri loess series. The average size of farm in this county as given in the 1910 census is 146 acres. The leading crops are corn, small grain and hay, although alfalfa is extensively grown.

The feeding of cattle is followed largely for the purpose of utilizing the rough feeds, for providing a home market for the corn, and for furnishing manure with which to maintain fertility. Very little corn is shipped out of the county, nearly all being fed to some kind of live stock. While a good many cattle are raised in the rougher portions of the county, most of the feeder cattle are purchased in Omaha, the farmers having easy access to that market. Most of the records were taken in the central part of the county where nearly all of the land is tillable, although quite rolling.

The average size of the farms visited was 245 acres (see Table 2), 38 per cent of which was in corn. Twenty-nine per cent of the land on these farms was in pasture, 12 per cent in hay, and 11 per cent in small grains. The average real estate investment was $47,000, the land being valued a little lower than for the farms in the Nebraska area visited. The farmstead of a farm typical of the large farms in this region is shown in figure 1. This farm has a real estate investment of over $150,000.

Twenty-eight records were taken in Cedar and Washington Counties, which are in the southeastern part of Iowa, and near the eastern border. Although these two counties do not join, Washington County being southwest from Cedar, the general conditions are much the same in both, and are representative of the farming conditions, as well as the cattle-feeding business, in southeastern Iowa.

The land is gently rolling and the soil is of the Iowa drift series. The average farm acreage, according to the 1910 census, is 148. Corn is grown in rotation with wheat (or oats) and clover. At one time there were many blue-grass pastures, but within recent years a large number of these have been put under cultivation. Formerly many prime heavy steers were fattened in this region. The increasing prices of feeder cattle and of feeds have caused many farmers to discontinue their feeding while others have gradually curtailed their feeding operations or have radically changed their methods of feeding.

The average size of the farms visited (246 acres) was practically the same as for Pottawattamie County. The average real estate value of the farms was about $55,000. The relative acreage in crops was about the same as in the other districts, except that there was a greater acreage in pasture.

A few of the farmers visited still continue to produce heavy prime beef, and to feed large quantities of corn. The majority, however, feed only a limited quantity of grain, and largely rely on silage and summer pasture in order to get as cheap grains as possible, their aim being to produce medium fat cattle.

The production of cheap beef enables the farmers in this region more fully to utilize their corn stalks and other rough feeds, and to save the greater part of their corn to feed to hogs. It also provides them with an abundance of manure, which is an important factor in their farming operations. This method of feeding fits in well with their general farm operations, as most of the labor comes in the winter when field work is light, and the plan seems to be growing more and more popular. A feeding plant where several carloads are fed annually that is fairly typical of this region is shown in figure 2.

MISSOURI.

Records were taken on 25 farms in Clinton County, in the northwestern part of Missouri, about 40 miles northeast of Kansas City and about equally distant from St. Joseph. The land is rolling to hilly. The soil is underlaid by limestone, which makes for excellent blue-grass pastures. As nearly one-half the land is in permanent pasture, the county is well adapted to live-stock farming. The majority of the farmers visited are men who own their farms, who have made money feeding cattle in previous years, and who take great pride in having prime cattle that command the top prices at the markets. In order to utilize the blue-grass pastures to the best advantage, farming is largely built around the cattle-feeding industry. According to the 1910 census, Clinton County was the fourth county in the State in number of cattle fed. The farms visited averaged 493 acres in size and had an average real estate investment of $76,000. Forty-two per cent of the total acreage was in permanent pasture and 32 per cent in corn.

Steers of good quality, weighing from 800 to 1,100 pounds, are usually purchased at Kansas City in the late summer and fall and turned on the blue-grass pastures, where they usually remain until disposed of. Corn fodder forms the basis of the feed, this being fed on pasture during the winter months. In the late winter or early spring the cattle that are to be fattened for early market are put on a heavy ration of corn, supplemented with cotton-seed meal, which is continued until they are shipped. The remainder are mainly carried on pasture until midsummer, when grain feeding is again resumed, to be continued until the cattle are marketed in the late summer. Whichever system is followed, corn is abundantly fed, it being commonly said that about 75 bushels are needed to finish a

FIG. 1.—Cattle-feeding plant typical of southwestern Iowa farms fattening several carloads of steers annually. The rolling character of country is fairly typical of eastern Pottawattamie and adjoining counties.

FIG. 2.—A feeding plant in eastern Iowa, where several carloads of prime steers are fattened annually. This plant, although not elaborate, represents an investment of several thousand dollars.

FIG. 3.—Buildings that are fairly typical of equipment used for winter feeding of cattle in western Iowa.

FIG. 4.—A common type of Nebraska feed yard, showing the large hay rack between two yards and the arrangement of feed bunks. The sloping hillside insures good drainage.

steer. During recent years these heavy rations of corn have not generally been profitable, and in most parts of the Corn Belt they have largely been discontinued. It is probable that the quantity of corn fed per steer in this county has been decreased somewhat, as many of the farmers realize that the use of excessive grain rations is not a profitable practice.

Saline County is situated in the west-central portion of Missouri, its northern boundary being formed by a big bend in the Missouri River. Marshall, the county seat, is about 75 miles east of Kansas City. The average size of the farms, according to the 1910 census, is 120 acres. The principal crops are corn, wheat, and hay. The lowlands along the river are almost wholly devoted to grain farming and hog feeding. The western portion of the county contains an area of bench land several miles wide. Cattle feeding predominates in this section, the feeders forming a distinct class, being generally owners operating farms much larger than the average for the county.

The average size of the 28 farms on which records were taken was 455 acres, 35 per cent of which was in pasture, 29 in corn, 15 in small grain, and only 4 in hay. The average value of these farms was $81,000.

While most of the Corn-Belt farmers feed cattle as a means of utilizing their rough feeds, the feeding operation being a minor enterprise, the men are primarily cattle feeders. They have built their farming operations around the cattle-feeding industry and have developed an excellent system. The common feeding unit is from 100 to 200 head. Cattle are generally bought in the fall, coming mostly from Kansas City, although some are brought from the counties to the east and south, and many from the Ozark Mountains. Most of the cattle (chiefly 2-year-olds) are of inferior quality, especially those that are given but little corn.

At one time Saline County had the reputation of feeding prime heavy cattle, but there has been a gradual evolution until at present few prime steers are fed. The object of the feeders in this region is to produce meat, with emphasis on amount rather than quality. While considerable corn is raised, this is mostly utilized as silage or for supplementing the rations for the hogs that follow the cattle. Most of these men buy additional corn for feeding. The principal feeds are silage, corn and cottonseed meal. These sometimes constitute the sole ration.

Carroll County is in the north-central part of Missouri, on the north side of the Missouri River. The average size of farms is 128 acres. In the southern part of the county the lands are mostly flat river bottoms. A few miles back from the river the rolling uplands begin. On the uplands there are large areas of blue-grass pasture. In this area the general farming operations are based on the utilization of

this pasture, which is grazed the greater part of the year. Corn, wheat, oats, and hay are the leading crops. The average size of farm, according to the 1910 census, is 128 acres.

The farms which were visited averaged 400 acres and were slightly smaller than those visited in Clinton and Saline Counties. Fifty per cent of the land was in pasture and 21 per cent in hay. Only 17 per cent was in corn, there being a comparatively small acreage in cultivation.

On the river-bottom land the practice of feeding heavy cattle prevails. On the uplands this practice has been largely discontinued, most of the cattle fed at present being bought as yearlings and calves. These are purchased in the fall, turned on pasture, and roughed through the following winter, being fattened on pasture the following summer for the late fall market. The pasture is usually supplemented by a small amount of corn and some linseed-oil meal or cottonseed meal. Most of the cattle are kept for a period of from 8 to 12 months.

FATTENING 2-YEAR-OLD CATTLE.

These cattle were for the most part purchased at the Missour River markets during the fall of 1916, although some were purchased earlier in the year. A few droves were purchased in the late winter or early spring of 1917. The average purchase date for all of the cattle was October 17. While there was a great variation in the length of time the cattle were kept, the average time for all districts (see Table 3) was 179 days. During this time the cattle gained on an average 293 pounds, the initial weight being 938 pounds and the final weight 1,231 pounds.

TABLE 3.—*Average purchase and sales dates and the gains made for the 2-year-old cattle.*

District.	Number of droves.	Average number in drove.	Purchase date.	Sale date.	Days kept.	Initial weight.	Final weight.	Total gain.	Daily gain.
						Pounds.	*Pounds.*	*Lbs.*	*Lbs.*
Burt County, Nebr.	44	29	Oct. 9	Feb. 22	133	943	1,213	270	2.03
Pottawattamie County, Iowa	32	36	Oct. 10	Feb. 24	134	972	1,272	300	2.24
Eastern Iowa	20	59	Oct. 21	May 12	201	958	1,223	265	1.31
Clinton County, Mo	26	107	Oct. 16	July 10	264	923	1,282	359	1.36
Saline County, Mo	28	96	Dec. 5	July 3	208	901	1,172	271	1.30
Carroll County, Mo	8	61	Sept. 30	Apr. 21	201	900	1,225	325	1.61
Average of all	158	60	Oct. 17	Apr. 21	184	938	1,231	293	1.59

On several of the farms a few 3-year-old cattle were included. There were also a number of droves of 3-year-old cattle on which records were obtained, this being especially true in Clinton County, Mo. The 3-year-old cattle have been classed with the 2-year-olds in the tabulations, as they were handled in the same manner.

NEBRASKA.

The 2-year-old cattle on which records were obtained in Burt County, Nebr., were mostly purchased in the fall at an average weight (Omaha weight) of 943 pounds. Some of these cattle were put directly into the feed lots, while others were first turned into the stalk fields or on pasture for a few days and then put in the dry lots. The length of the time they were kept varied from 55 to 388 days, the average period being 4½ months. During this time the cattle made a net gain of 270 pounds per head and sold at market at an average weight of 1,213 pounds.

The average ration for a 2-year-old steer on the farms visited in Burt County was: Corn 2,127 pounds (38 bushels), oil meal 54 pounds, hay 1,546 pounds, silage 75 pounds, stalks ¼ acre, and pasture 18 days. Small quantities of other feeds, as shown in Table 4, were also given. Two-fifths of the corn was fed as snapped corn, and one-fifth each as ear, crushed ear, and shelled corn. The hay was mostly alfalfa.

TABLE 4.—*Kind and average quantity of feeds fed to a 2-year-old steer.*

District.	Corn.	Oats.	Oil meal.[1]	Molasses feed.	Gluten.	Hay.	Silage.	Straw.	Stalks.	Stover.	Pasture.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Acres.*	*Acres.*	*Mos.*
Burt County, Nebr.	2,127	8	54	1.4	.....	1,546	75	329	0.28	0.02	0.6
Pottawattamie County, Iowa	2,526	.....	41	.....	35	1,167	197	216	.18	.02	.9
Eastern Iowa	1,163	67	111	.....	.....	627	2,842	425	.70	.04	2.9
Clinton County, Mo.	8,044	16	129	334	.....	425	.....	131	.07	.72	4.7
Saline County, Mo.	1,749	40	249	3	.....	257	2,373	346	.96	.30	3.2
Carroll County, Mo.	2,195	.....	368	140	.....	1,241	389	56	.10	.14	3.2

[1] Including linseed-oil meal and cottonseed meal.

IOWA.

In Pottawattamie County, Iowa, the cattle were purchased on the Omaha market at practically the same time as were the Burt County cattle and were handled in the same general manner except that they were fed a little heavier. Their initial weight was 972 pounds, or 30 pounds more than the Nebraska cattle. They were also sold on the same average date, weighing 1,272 pounds, making about 30 pounds better gain than the Nebraska cattle.

The average ration per steer was: Corn 2,526 pounds (45 bushels), linseed-oil meal 41 pounds, gluten 35 pounds, hay (mostly alfalfa) 1,167 pounds, silage 197 pounds, straw 216 pounds, stalks 0.2 of an acre, pasture 28 days, and other small amounts of miscellaneous feeds, as shown in Table 4. A little over three-fifths of the corn was fed as shelled corn.

The cattle on which records were obtained in Cedar and Washington Counties were mostly bought in the fall, either at Omaha or Kansas City, at an average weight of 958 pounds (see Table 3), these being the heaviest feeders reported for any of the six districts. There were

two distinct methods of feeding, which, because of an insufficient number of records for separate tabulations, have been included as one group. On some of the farms the cattle, after running in stalk fields for a short time, were immediately put in the feed lots and fattened as prime beef, being handled in the same manner as the cattle in Burt and Pottawattamie Counties.

The cattle on which most of the records were obtained were roughed through the winter on a heavy maintenance ration, in which silage and clover hay were the principal feeds. These cattle were turned on pasture as soon as the grass was strong and were allowed to remain there until they were fit for market. They were fed a small amount of corn a few days before they were shipped. On two of the farms visited only 5 bushels of corn was fed per head.

The average date of sale for all of the cattle was May 12. They gained 265 pounds per head and weighed 1,223 pounds when sold. The average ration for each steer was: Corn 1,163 pounds (20¾ bushels), oats 67 pounds, cottonseed meal 111 pounds, timothy and clover hay 627 pounds, silage 2,842 pounds, straw 425 pounds, stalks 0.7 of an acre, and pasture 3 months.

MISSOURI.

The cattle fattened in Clinton County, Mo., were mostly bought at Kansas City in the fall months, at an average weight of 923 pounds. being a little lighter than those in the previously-mentioned districts, they were turned on pasture and given about two months fall grazing. Beginning in November or December, and continuing until spring, they were fed shock corn(i. e., cut fodder which has not been husked). The farmers aim to feed about a peck of corn a day to each steer.

Toward spring the best cattle are usually sorted out, given a little additional corn, and shipped to market. The remainder are held over, the corn being discontinued six weeks to two months during the first part of the pasture season, although cottonseed meal is usually continued. In midsummer they are put on full feed of corn which is continued one to three months before the cattle are marketed. The cattle averaged 1,282 pounds at market, a gain of 359 pounds per head. This is equivalent to a daily gain of 1.36 pounds.

These cattle in Clinton County were more heavily fed than those in any of the other districts visited, as the feeders aim to produce prime beef. They received 3,044 pounds (54.3 bushels) of corn per steer, most of which was fed in the form of fodder. They also received 334 pounds of molasses feed, 129 pounds of cottonseed meal, 16 pounds of oats, 425 pounds of timothy and clover hay, three-fourths of an acre of stover (mostly fed as fodder but reduced to ear corn and stover in the tabulations), and 4.7 months pasture per head, besides small amounts of other feeds. No silage whatever was fed.

The cattle fattened in Saline County, Mo., were bought in Kansas City, in the counties to the south and east, and in the Ozark Mountains. With the exception of those in Carroll County, these were the lightest feeders reported, averaging 901 pounds. They were bought the latest of any of the cattle, the average purchase date being December 5. They were kept for an average period of 207 days, and sold in July, weighing 1,176 pounds per head, and were the lightest cattle sold. They made a total gain of 275 pounds per head, or 1.3 pounds daily. As the aim of the Saline County feeders was to produce beef at a minimum cost rather than to produce prime beef, corn was fed moderately. These men figured on making a large part of their gains with silage and pasture. The average ration was corn 1,749 pounds (31 bushels), cottonseed meal 249 pounds, oats 40 pounds, hay 257 pounds, silage 2,373 pounds, straw 346 pounds, stalks 1 acre, stover one-third of an acre, and pasture 3.2 months.

The two-year-old cattle on which records were obtained in Carroll County, Mo., were mostly purchased locally during the latter part of September, averaging 900 pounds. They were kept for an average period of 200 days, and sold at an average weight of 1,225 pounds, a gain of 325 pounds per head.

TABLE 5.—*Items of expense and of credit in finishing a 2-year-old beef animal for market.*

District.	Number of droves.	Charges.							Gross cost.	Credits.			Net cost.
		Initial cost.	Feed.	Labor.	Equipment.	Interest.	Miscellaneous.	Marketing.		Pork.	Manure.	Total.	
Burt County, Nebr.	44	$70.38	$48.36	$3.11	$2.57	$2.48	$1.31	$2.04	$130.25	$8.28	$2.34	$10.62	$119.63
Pottawattamie County, Iowa	32	76.19	54.45	2.45	2.69	2.78	1.01	1.87	141.44	9.15	1.54	10.69	130.75
Eastern Iowa	20	31.06	43.77	2.75	2.79	3.32	1.07	2.99	142.75	4.42	2.94	7.36	135.39
Clinton County, Mo.	26	71.30	85.94	4.62	1.75	5.94	.78	2.28	172.60	17.91	.06	17.97	154.63
Saline County, Mo.	28	65.72	52.75	3.80	1.97	3.69	1.37	2.65	131.95	8.49	.35	8.84	123.11
Carroll County, Mo.	8	64.52	50.76	2.43	1.90	3.49	.70	2.52	126.32	10.47	.61	11.08	115.24
Average of all	1153	71.94	56.73	8.27	2.35	3.48	1.10	2.30	141.17	9.70	1.44	11.14	130.03

[1] Total.

The average gross cost of a steer for the six districts, including shipping expenses, was $141.17. The Clinton County cattle were the most expensive, costing $172.60 per head. The Carroll County cattle were the least expensive, averaging $126.32. Deducting credits for pork and manure, the average final cost per head for the six groups at time of sale is $130.03.

The average ration per steer was: Corn 2,195 pounds (39 bushels), linseed-oil meal 241 pounds, cottonseed meal 127 pounds, molasses feed 140 pounds, timothy and clover hay 1,241 pounds, silage 389 pounds, stover 0.14 acre, stalks 0.1 acre, and pasture 3.2 months.

THE COST OF FATTENING 2-YEAR-OLD CATTLE.

The items of expense considered in the study of the cost of fattening 2-year-olds are initial cost (cost laid down), feed, labor, equipment, interest, miscellaneous charge (including risk, insurance, veterinary charges, and incidental expenses) and marketing. The credits considered were pork and manure. There are a number of minor items of expense that have not been considered, as there was no accurate way of determining how much they amounted to, since they are charges that farmers seldom take into consideration. In the first place, no charge has been made for the farmer's own time as manager. Wherever he has performed direct work on the cattle this has been charged the same as for hired help. Again, no charge has been made for business risk which would cover the losses incurred during unprofitable years, or through inability to feed because of unsatisfactory market conditions. Nor does it take into consideration any losses from the hogs that follow the cattle because of possible epidemics such as cholera.

The various items of expense in this enterprise that were considered are shown in Table 5.

The initial cost is the greatest item of expense, constituting 51 per cent of the total gross costs. This varied from $64.52 in Carroll County to $81.06 in eastern Iowa.[1]

The feed bill was the largest expense, amounting to 40 per cent of the total. The average feed costs ($56.73) are very uniform for all districts except Clinton County. For Clinton County the feed bill amounts to $85.94, or 49 per cent of the total gross cost. In this one group the feed cost is greater than the initial cost. In the remaining districts this charge varies from $48.36 in Burt County to $54.45 in Pottawattamie County.

Interest, labor, equipment, and the marketing charge each constitute approximately 2 per cent of the total cost, averaging $3.48 for interest, $3.27 for labor, $2.35 for equipment, and $2.30 for marketing. The miscellaneous charges amount to 1 per cent.

The average pork credit for all six districts is $9.70. This varies from $4.42 in eastern Iowa, where very little corn is fed, to $17.91 in Clinton County, where each steer received 54 bushels of corn, most of which was fed on pasture in the form of fodder. The remaining pork credits vary from $828 in Burt County to $10.47 in Carroll County. The credits for manure were $1.44, varying from $0.06 in Clinton County, where the cattle were on pasture the greater part of the time and where manure was not much valued, to $2.94 in eastern Iowa, where the manure is fully utilized.

[1] The eastern Iowa records include a few droves of cattle that were finished late in the year 1917. A some of these were purchased during the spring of 1917, their initial cost was greater than that for the average.

METHODS OF OBTAINING COSTS.

ITEMS OF EXPENSE.

Initial cost.—The initial cost is the cost laid down at the feed yard. It includes the purchase price and any additional expenses such as freight, commission, etc., that are included in shipping the cattle to the farm.

Feed costs.—The kind and quantities of feeds that were fed have already been shown in Table 4. The quantities are based on estimates made by the farmers, or on figures taken directly from books kept by them. The values of these feeds (shown in Table 6) are based on the cost laid down, or if raised on the farm, their value when fed. If outside labor was used in hauling the purchased feed to the feed yard this is included in the cost of the feed at the yard. Hauling done by the regular farm labor is included in the labor charge, as it is usually done during spare time. Feed that was raised on the farm is priced at what it would have sold for on the farm at the time of feeding, which is the market value of the product, less tha expense of getting it to the shipping point.

TABLE 6.—*Average price of the different feeds given the 2-year-old cattle.*

District.	Corn, per bushel.	Oats, per bushel.	Oil meal, per ton.	Molasses feed, per ton.	Miscellaneous concentrates, per ton.	Hay, per ton.	Silage, per ton.	Straw, per ton.	Stalks, per acre.	Stover, per acre.	Pasture, per month.
Burt County, Nebr.	$0.95	$0.52	$44.13	$26.00	.....	$10.85	$6.25	$2.26	$1.88	$6.18	$1.63
Pottawattamie County, Iowa	.93	.....	41.81	.....	$34.67	12.73	6.08	3.94	1.05	6.00	1.56
Eastern Iowa	1.33	.64	47.69	.....	.....	13.29	6.49	5.55	1.14	8.20	2.07
Clinton County, Mo.	1.11	.52	42.40	37.82	.....	9.61	.....	3.93	.75	4.08	1.99
Saline County, Mo.	1.15	.55	40.64	39.15	.....	10.76	5.62	3.26	.99	4.30	1.62
Carroll County, Mo.	.80	.....	42.44	39.27	.....	9.82	5.00	5.00	.75	4.00	1.26
Average of all	1.04	.58	42.92	37.54	34.67	11.28	5.95	3.68	1.10	4.85	1.73

The average price of corn was $1.04 per bushel, varying from $0.80 in Carroll County to $1.33 for the cattle in eastern Iowa which were finished in midsummer of 1917. In Carroll County, where only eight records were obtained, it so happened that on all of the farms corn was bought the previous fall at an average price of $0.80 a bushel. This corn, if sold at the time of feeding, would have brought $1.06 a bushel. The average value of the hay fed was $11.28 per ton, ranging from $9.61 in Clinton County to $12.73 in Pottawattamie County.

Silage was valued at $5.95 per ton. The price was calculated by determining the value of unhusked corn per acre and adding to this the cost of putting the corn in the silo, and a small charge for the fodder.

The value placed on pasture is based on the rent rate for the community. When there was no established price this figure was determined by charging 6 per cent on the value of the pasture land. The average monthly rent for pasture is $1.78 per head, this being higher than for the previous years. On a number of the farms the cattle were kept in the pasture fields and fed there during the winter months. When the pasture furnished but little, if any, of the feed during this time no charge has been made.

Labor.—The item of labor is made up of the two charges, man labor and horse labor. The man labor has been figured at the rate of 20 cents an hour. This is an average of the estimates made by the farmers in the different districts for the feeding year of 1916–17. It is higher than the estimates of some farmers, but it is also lower than many actually paid. For the cattle sold after midsummer of 1917 this charge is too low, as much of the labor performed on them actually cost from 25 to 30 cents an hour. This charge is, however, higher than the estimates for the previous years, which averaged 15 cents an hour.

Horse labor is figured at the rate of 10 cents an hour per horse used. This covers charges for feed, depreciation, interest on the investment, and other general maintenance charges on the horses and harness. This charge is based on estimates made by the farmers who were visited, and also on data secured from other sources by the Office of Farm Management. For the cattle fattened in the fall of 1917 it is too low, as more recent estimates show that this charge now runs from 13 to 15 cents an hour.

The average number of hours of man labor per steer is 9.9. This varies from 7 hours in Carroll County to 14 hours in Clinton County. The average number of hours of horse labor per steer was 12.5. This was lowest in Pottawattamie County, being 8 hours, and highest in Clinton County (18 hours), where there was much winter horse labor in hauling fodder to the pasture.

Equipment.—The equipment charges were obtained by first getting the inventory value of the equipment used by the cattle on each farm, and then by making a suitable charge against it. The rate charged varies with the type of equipment. In the case of barns, sheds, corncribs, and other buildings (as well as water systems) which are used solely in cattle feeding, a flat rate of 10 per cent is charged against their inventory value. This covers interest on investment, depreciation, taxes, insurance, and general repairs. When only a part of these buildings is used by the cattle a charge is made to cover the proportionate space they utilize.

The charge for yardage is obtained by making a charge against the land used, and also against the fence inclosing it. A flat rate of 6 per cent to cover interest and taxes is made against the inventory

value of the land. The fence charge for each farm is determined as follows: The annual value of fence is based on its original value divided by the years of its life. To this annual charge is added the farmer's estimate of the annual repairs, plus interest at 5 per cent on the average value of the fence. The average value of the fence is considered to be one-half of its original cost.

In getting the annual charge for feed bunks and for hayracks, an estimate was obtained from the farmer as to their initial cost, the length of their life, and annual repairs. It was found that in the case of the bunks the rate for depreciation and repairs was 15 per cent of the original value. An interest charge of 2½ per cent[1] was added, making a total of 17½ per cent to charge against the original value. The charge against the hayracks was made in the same manner, except that the rate used is 15 per cent.

Figure 3 is an excellent illustration of the type of building used by Iowa farmers, who feed the cattle under shelter, while figure 4 is a good illustration of an open yard in eastern Nebraska.

Interest.—Interest has been charged on the initial cost of the animal in the feed yard and one-half the feed costs. On a few farms, where all of the feed was bought in advance, interest is charged on the entire feed bill. No interest has been charged against labor, unless the farmer actually borrowed money from the bank with which to pay such labor. The majority of the farmers do their own feeding, and under such circumstances an interest charge does not seem equitable. The rate of interest used was based on what the farmers were obliged to pay the banks, or the cattle loan companies. The rate of interest charged in each district is the prevailing one for that particular district, which was usually 7 per cent.

Miscellaneous expenses.—The items of expense included under this charge are risk, veterinary expenses, insurance, taxes, and incidental expenses.

Risk is figured separately for each farm. As it was impossible to get an accurate value of the animals at the time of death, the initial value is taken for each animal that died. The value of the hide, when saved, is then deducted. The remainder, divided by the total number of steers sold, gives the risk figure for that drove. As the feed is always obtained on the basis of the total quantity consumed by the drove, the quantity consumed by the animals that die is prorated among those sold. The same is true of labor and the other items of expense. While this may not be a true risk figure, nevertheless, when it is considered that the steers marketed must stand the expense of those that died, it is a true cost. The average risk

[1] The rate of 2½ per cent interest against the original cost is used in order to simplify the work, instead of a 5 per cent rate on the average cost (one-half the original cost).

charge is 33 cents per head, varying from 61 cents in Burt County, where there was a 1 per cent loss, to 5 cents in Clinton County, where there was a loss of one-tenth of 1 per cent. The average number of animals lost for the six districts was one-half of 1 per cent.

The veterinary expense includes all charges for veterinary services, drugs, vaccination, and dehorning. An insurance charge is included wherever the cattle were insured against death by fire, lightning, or tornado. This charge averaged for all districts 5 cents per head. Health insurance on cattle was not carried by any of the farmers visited. Whenever taxes were paid on cattle this item is also included.

The incidental expenses included a number of items that are directly incurred in the cattle-feeding business. Among these are telephone and telegraph charges, when directly incurred against the cattle, oil and gas for pumping water and grinding feed, dues to associations when these deal directly with the feeding enterprise, traveling expenses in looking after items of business directly concerned with cattle feeding. All of these incidental charges taken together amount to 22 cents per head for the six districts.

Marketing.—This item includes the cost of shipping the cattle to market, and is made up of charges for freight, feed in transit, shipping insurance, yardage, feed in yard, commission fees, etc. All of the costs under this head are taken directly from the commission firm statements.

ITEMS OF CREDIT.

From the gross cost of preparing a steer for market credits for pork and manure are deducted.

Pork credit.—The pork credit is based on the farmer's estimate of the amount of pork produced behind each drove of cattle and the farm value of this pork on the date the cattle were shipped. The farm value is the market value less the cost of shipping. If some of the hogs were sold during the feeding period and new ones substituted, the pork for those sold is credited at their farm-sale value.

A number of farmers knew the definite number of pigs that were turned in behind the cattle as well as their initial weight. They also knew the number of hogs and their weight when the cattle were sold. On these farms accurate pork credits were obtained. On the majority of farms, however, the hogs are moved around in such a manner that no accurate figures as to the amount of pork can be obtained. Under such circumstances it was necessary to take the farmer's estimate. However, most of the farmers visited had a fairly definite idea of the amount of pork that should be credited to the steers on which records were obtained. In the case of a few farms, where it was impossible to secure reliable estimates, it was assumed that two pounds of pork were produced for each bushel of corn fed to a steer.

A number of farmers were feeding their cattle more corn than they could consume with the expectation that the hogs would get the corn that was left. As there was no way of prorating this corn between the hogs and the cattle, it has been charged directly against the cattle. While, under such circumstances, the charge against the individual steer may be too high, the credit for the pork will compensate for this when the feeding operation is considered in its entirety. The amount of pork produced behind a steer averaged 70 pounds per head (see Table 7), and was greatest in Clinton County (115 pounds) and least in eastern Iowa, where it amounts to only 32 pounds.

TABLE 7.—*The pork produced per 2-year-old steer and per bushel of corn fed to a steer, and the value per pound of the pork sold.*

District.	Pork per Steer.	Pork per bushel of corn fed.	Price of pork per hundredweight.
	Pounds.	*Pounds.*	
Burt County, Neb.	68	1.8	$11.93
Pottawattamie County, Iowa	72	1.6	12.29
Eastern Iowa	32	1.0	14.08
Clinton County, Mo	115	2.2	15.32
Saline County, Mo	55	1.8	15.39
Carroll County, Mo	77	1.8	15.36
Average of all	70	1.7	13.34

The amount of pork per bushel of corn fed to a steer is very uniform for all districts except Clinton County and eastern Iowa. In Clinton County most of the corn was fed in the form of fodder on pasture and in large quantities. On these farms the hogs naturally got a large quantity of waste corn, so that the amount of pork produced per bushel of corn fed was 2.2 pounds. In eastern Iowa there were a number of droves of cattle that did not receive enough corn to justify having hogs behind the cattle. There were also a number of droves where the hogs got very little waste from behind the steers. In this district the amount of pork drops to one pound per bushel of corn fed to a steer.

The value of the pork produced behind the cattle is lowest ($11.93 per hundredweight) in Burt County, where most of the cattle were sold in the winter of 1916–17, before high hog prices began to prevail. In Clinton and Saline Counties, where the cattle were sold in midsummer of 1917, the average value of pork was 15⅓ cents per pound. The pork credit for Pottawattamie County is slightly higher than for Burt County, although the cattle were handled in the same manner, as two of the droves were marketed in the fall of 1917, when the price of pork was much higher.

The average pork credit for the six districts is much higher than normal. The average price for mixed hogs at Chicago for 1917 was

$15.10 (see fig. 5), which is the highest average price on record, and for 1916, $9.60. These figures are much higher than for the decade of 1906–1915, $7.25 per hundredweight, and higher than for any of the

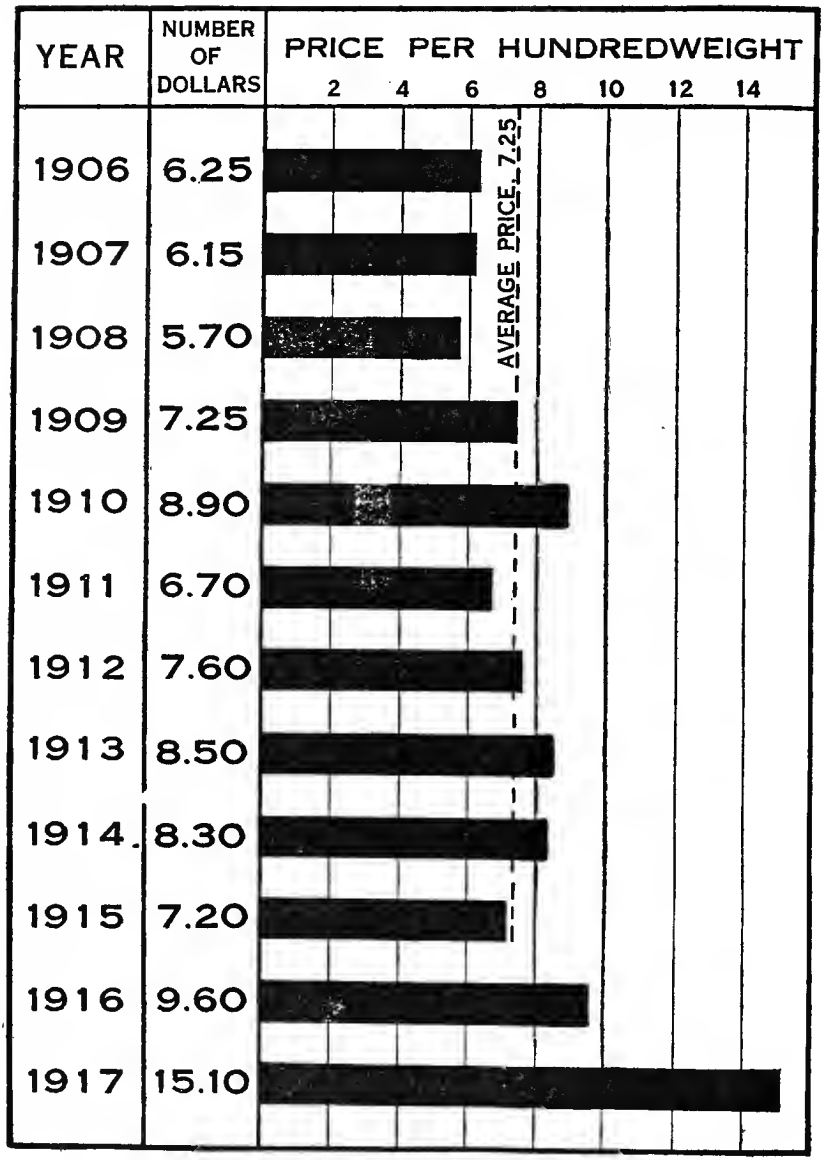

FIG. 5.—Average price of mixed hogs at Chicago, 1906–1917 inclusive.

previous 10 years. The price for 1917 is double the average for the 10-year period.

Manure credit.—The manure credit is based on the farmer's estimate of the number of loads of manure hauled out and its value

per load. The amount utilized varied from one-tenth of a load per steer in Clinton County, where the cattle were mostly fed on grass, to 2.6 loads in Burt County. The average value of a load of manure varied from $1.29 in eastern Iowa, where the manure was most highly prized, to 61 cents in Clinton County. The great majority of farmers valued manure at $1 per load in the yard, although estimates ranged from as high as $2 down to the mere cost of getting the manure on the land.

ANALYSIS OF THE PROFITS REALIZED.

As previously stated, these cattle proved unusually remunerative, making an average profit above expenses (see Table 8) of $12.32 per head.

TABLE 8.—*The profits made per head in fattening 2-year-old cattle.*

District.	Final cost.	Sale price.	Profit with pork.	Profit without pork.	Loss without pork.
Burt County, Nebr.	$119.63	$128.18	$8.55	$0.27	.....
Pottawattamie County, Iowa.	130.75	143.08	12.33	3.18	.....
Eastern Iowa.	135.39	144.05	8.66	4.24	.....
Clinton County, Mo.	154.63	168.84	14.21	.....	$3.70
Saline County, Mo.	123.11	139.04	15.93	7.44	.....
Carroll County, Mo.	115.24	139.00	23.76	13.29	.....
Average of all.	130.03	142.35	12.32	2.62	.....

The profit per steer in Carroll County was $23.76. This abnormally large profit is due to the fact that the corn fed was bought the year before, and is charged to the cattle at but 80 cents a bushel. Had this corn been charged at its actual sale value at the time it was fed ($1.06) the profit on these cattle would have been reduced to $13.26 per head, which is about the same as for the other groups. The next greater profit ($15.93) is for Saline County, where the bulk of cattle were fed in as economical a manner as possible. The lowest profit is in Burt County, averaging $8.55.

The greater part of this profit is due to the pork credit, which, as previously explained, is unusually high. Deducting the credit for pork, the average profit per steer is $2.62. In Clinton County, where a very large quantity of corn was fed, the average loss, when the credit for pork is deducted, is $3.70 per steer. In the remaining districts the cattle realized a profit which varied from 27 cents per steer in Burt County to $13.29 in Carroll County. Assuming the price of corn to have been at its market value, the profit without pork on the Carroll County cattle would have been $2.79, or about the same as the average for the six districts.

The margin of profit, or spread, between the initial cost and the selling price per hundredweight, for the six districts, is $3.89. This margin varied from $3.11 in Burt County (see Table 9), where the cattle were sold comparatively early, to $5.45 in Clinton County, where most of the cattle were held until July.

TABLE 9.—*The necessary margin required and the margin obtained for the 2-year-old fattening cattle.*

District.	Initial cost per hundredweight.	Final cost per hundredweight.	Sale price per hundredweight.	Necessary margin per hundredweight.	Margin obtained per hundredweight.
Burt County, Nebr.	$7.46	$9.86	$10.57	$2.40	$3.11
Pottawattamie County, Iowa.	7.84	10.28	11.25	2.44	3.41
Eastern Iowa.	8.46	11.07	11.78	2.61	3.32
Clinton County, Mo.	7.72	12.06	13.17	4.34	5.45
Saline County, Mo.	7.29	10.50	11.86	3.21	4.57
Carroll County, Mo.	7.17	9.40	11.35	2.23	4.18
Average of all.	7.67	10.56	11.56	2.89	3.89

Because of unusual economic conditions this margin was much greater than normal in 1917. The difference between the average cost of feeder cattle and the sale price of beef animals at Chicago was $4.40 per hundredweight (see fig. 6). This margin between the price of feeder cattle and of fat cattle for the previous decade of 1906–1915 was $2, or a little less than one-half the margin for 1917. The greatest margin for any one year during this decade was in 1912, when there was a spread of $3 a hundredweight between feeder cattle and fat cattle.

The necessary margin that must be secured if the cattle were to pay their bare cost of fattening was $2.89. This necessary margin (which is the difference between the initial and the final cost per hundredweight) is about 80 cents more than the spread obtained for the 10-year period. This means that the increased expenses in fattening these cattle made it necessary for the farmer to receive a considerably higher margin than usual, even when the pork obtained from behind the cattle sold for a much higher price than usual.

The cost per pound of gain for the six districts is shown in Table 10.

TABLE 10.—*Cost of a pound of gain in fattening 2-year-old steers, with and without pork.*

District.	Pounds gained.	Cost of fattening.		Cost per pound of gain.	
		With pork.	Without pork.	With pork.	Without pork.
Burt County, Nebr.	270	$49.25	$57.53	$0.182	$0.213
Pottawattamie County, Iowa.	300	54.56	63.71	.182	.212
Eastern Iowa.	265	54.33	58.75	.205	.222
Clinton County, Mo.	359	83.33	101.24	.232	.282
Saline County, Mo.	271	57.39	65.88	.212	.243
Carroll County, Mo.	325	50.72	61.19	.156	.188
Average of all.	293	58.09	67.79	.198	.231

The average cost is 19.8 cents a pound. Deducting the credit for pork, this cost is increased to 23.1 cents a pound. The lowest cost

per pound of gain, not considering pork, was in Carroll County, 18.8 cents. With corn at $1.06, this cost would have been 21.9 cents, or

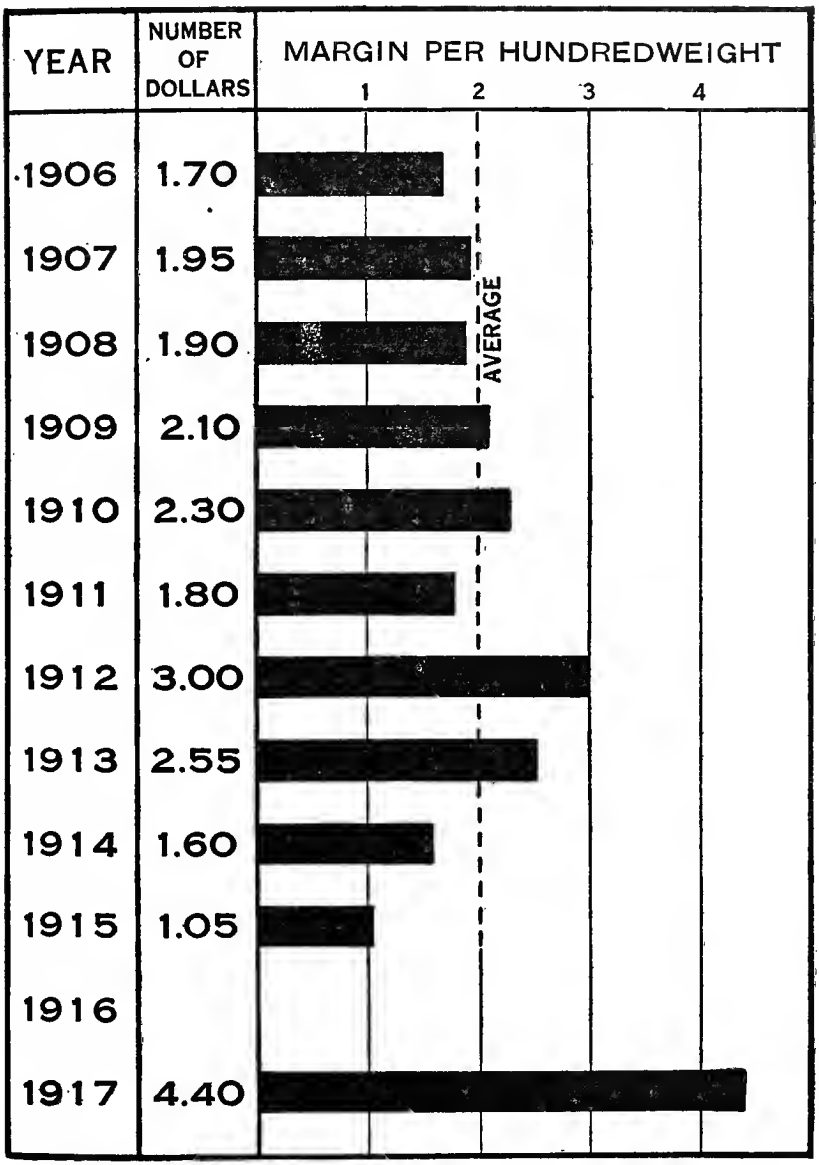

FIG. 6.—Margin between cost of feeders and price of fat cattle at Chicago, 1906–1917, inclusive.

about the same as for Nebraska and Iowa. The greatest cost for a pound of pork, deducting pork credits, is 28.2 cents for Clinton County.

FATTENING YEARLING CATTLE.

Records were obtained on 47 droves of yearlings. These were all bought in the fall or early winter of 1916–17 at an average weight of 691 pounds (see Table 11) and were sold the following spring or summer at an average weight of 1,037 pounds.

NEBRASKA.

The yearling cattle that were fattened in Burt County, Nebr., were mostly purchased in the latter part of October, at an average weight of 709 pounds. They were run on pasture and stalk fields for a short time before being placed in the feed lot. They were kept for an average period of 158 days, during which time they gained 293 pounds, weighing 1,002 pounds at market.

TABLE 11.—*The average purchase and sales dates and gains made for the yearling steers.*

District.	Number of droves.	Average number in drove.	Purchase date.	Sale date.	Days kept.	Initial weight per head.	Final weight per head.	Gain per head.	Daily gain per head.
						Lbs.	*Lbs.*	*Lbs.*	*Lbs.*
Burt County, Nebr.	13	28	Oct. 25	Apr. 3	158	709	1,002	293	1.9
Pottawattamie County, Iowa	13	36	Nov. 13	May 26	193	708	1,071	363	1.9
Eastern Iowa	9	23	Aug. 25	June 18	293	658	1,039	381	1.3
Missouri	12	41	Oct. 20	July 1	251	677	1,037	360	1.4
Average of all	[1] 47	33	Oct. 16	May 24	218	691	1,037	346	1.6

[1] Total.

The average ration per yearling in Burt County (see Table 12) is: Corn 2,410 pounds (43 bushels), oats 28 pounds, linseed-oil meal 10 pounds, hay (mostly alfalfa) 1,414 pounds, straw 388 pounds, stalks 0.3 acre, and pasture 16 days.

TABLE 12.—*The kind and average quantity of feed fed to a yearling steer.*

Locality.	Corn.	Oats.	Oil meal.[1]	Molasses feed.	Gluten.	Hay.	Silage.	Straw.	Stalks.	Stover.	Pasture.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Acres.*	*Acres.*	*Mos.*
Burt County, Nebr.	2,410	28	10	.....	.....	1,414	.....	388	0.30	.....	0.6
Pottawattamie County, Iowa	2,564	3	20	94	8	1,487	855	309	.04	0.05	.7
Eastern Iowa	1,124	85	151	.....	.....	1,070	2,193	896	1.25	.11	4.2
Missouri	1,814	34	150	195	2	1,040	368	63	.80	.29	4.8
Average of all	2,054	24	75	76	3	1,273	750	381	.64	.11	2.4

[1] Including linseed-oil meal and cottonseed meal.

These cattle were mostly purchased at Omaha during the latter part of October and November and were sold late in May, being kept an average period of 193 days. Most of them were run on pasture

and stalks until about Christmas, at which time they were put in the feed lots, where they remained until sold. The initial weight, 708 pounds, is practically the same as for Burt County. The final weight (1,071 pounds) is 69 pounds greater than for Burt County, chiefly due to the feeding period being 25 days longer. The total gain is 363 pounds, or 1.9 pounds daily. The average ration per yearling is: Corn 2,564 pounds (46 bushels), oil meal 20 pounds, molasses feed 94 pounds, hay (mostly alfalfa) 1,487 pounds, silage 855 pounds, straw 309 pounds, pasture 22 days, and small amounts of other feeds as shown in Table 12.

IOWA.

The yearlings fattened in eastern Iowa were mostly bought during the latter part of August or early in September, and were kept for an average period of nearly 10 months. Their initial weight is 658 pounds per head, the lightest for the four groups. The final weight is 1,039 pounds per head, a total gain of 381 pounds per head, or 1.3 pounds daily. The average ration fed to a yearling steer is: Corn 1,124 pounds (20 bushels), oats 85 pounds, cottonseed-oil meal 151 pounds, timothy and clover hay 1,070 pounds, silage 2,193 pounds, straw 896 pounds, stalks 1.25 acres, stover 0.11 acre, pasture 4.2 months.

MISSOURI.

As records were obtained from only 12 droves of yearlings in Missouri, the three districts in that State are combined in this group. The average purchase date is October 20 and the average sale date July 1, the steers having been kept for a period of 251 days. Their initial weight is 677 pounds per head, while the final weight is 1,037 pounds, a gain of 360 pounds, or 1.4 pounds daily.

The average ration fed to each yearling is: Corn 1,814 pounds (32½ bushels), oats 34 pounds, cottonseed-oil meal 150 pounds, molasses feed 195 pounds, hay 1,040 pounds, silage 368 pounds, straw 63 pounds, stalks 0.8 acre, stover 0.3 acre, pasture 4.8 months. The corn was mostly fed as fodder, which in the tabulation has been reduced to ear corn and stover.

THE COST OF FATTENING A YEARLING.

The total cost of finishing a yearling for market is $119.49 for all districts visited. This cost is very uniform, ranging from $112.15 (see Table 13) in Missouri to $130.20 in Pottawattamie County, Iowa. The feed cost is the greatest item of expense, amounting to $56.05, or 47 per cent of the total cost. The initial cost is second, amounting to $51.13, or 43 per cent of the total. These two items make up approximately 90 per cent of the total cost of finishing a yearling for market. Interest ($3.26) amounts to 3 per cent of the total cost,

while labor, equipment, and marketing each amount to 2 per cent. The miscellaneous charges ($1.38) make a little over 1 per cent of the total.

TABLE 13.—*Items of expense and of credit in finishing a yearling for market.*

District.	Number of droves.	Charges.							Gross cost.	Credit.			Net cost.
		Initial cost.	Feed.	Labor.	Equipment.	Interest.	Miscellaneous.	Marketing.		Pork.	Manure.	Total.	
Burt County, Nebr.	13	$52.35	$52.04	$2.54	$2.32	$2.51	$2.06	$1.90	$115.72	$11.79	$2.61	$14.40	$101.32
Pottawattamie County, Iowa	13	53.65	64.31	2.97	2.74	3.24	1.46	1.83	130.20	12.28	1.82	14.10	116.10
Eastern Iowa	9	49.50	54.67	3.32	4.94	4.12	1.02	1.64	119.21	3.90	4.39	8.29	110.92
Missouri	12	48.26	52.46	3.47	1.63	3.48	.82	2.03	112.15	12.02	.32	12.34	99.81
Average of all	[1] 47	51.13	56.05	3.05	2.76	3.26	1.38	1.86	119.49	10.48	2.15	12.63	106.86

[1] Total.

The pork credits average $10.48, and the credits for manure $2.15. The net cost of the steers at market is $106.86, this cost varying from $99.81 for the Missouri yearlings to $116.10 for those in Pottawattamie County.

The various items of expense were figured in the same manner as for the 2-year-olds. The prices for the feeds, as given by the farmers, (shown in Table 14) are but little different from those for the 2-year-olds. The average price of corn was $1.07 per bushel, while hay was valued at $11.43 per ton. Silage was valued at $6.58 per ton and pasturage at $1.45 per month.

TABLE 14.—*Average price of the different feeds given the yearling steers.*

Locality.	Corn per bushel.	Oats per bushel.	Oil meal per ton.[1]	Molasses feed per ton.	Gluten per ton.	Hay per ton.	Silage per ton.	Straw per ton.	Stalks per ton.	Stover per acre.	Pasture per month.
Burt County Nebr.	$0.96	$0.48	$42.67	.....	.....	$10.66	.....	$1.90	$1.00	.....	$1.50
Pottawattamie County, Iowa	1.04	[2].70	42.50	$44.00	$45.75	13.96	$6.53	3.86	1.00	$5.12	1.63
Eastern Iowa	1.24	.48	47.57	.....	.....	11.65	6.83	3.56	1.09	7.50	1.51
Missouri	1.06	.58	42.10	35.91	40.00	8.42	6.00	3.00	.96	3.18	1.34
Average of all	1.07	.54	44.29	37.94	42.88	11.43	6.58	3.23	1.02	4.75	1.45

[1] Including linseed-oil meal and cottonseed meal.
[2] Fed December, 1917.

The number of hours of man labor expended in caring for a yearling is a little over 10, this being very uniform in all districts. There was also an average of 10 hours of horse labor per steer. In Nebraska, where the steers were dry-lot fed, there was a cost of only 7 hours of horse labor per steer; while in Missouri, where corn fodder was the principal feed, there was an average of 13 horse hours per steer.

TABLE 15.—*The pork produced per yearling, and per bushel of corn fed to a yearling, and the value of the pork sold.*

	Pork per yearling.	Pork per bushel of corn.	Value of pork per hundredweight.
	Pounds.	*Pounds.*	
Burt County, Nebr.	93	1.91	$13.10
Pottawattamie County, Iowa.	86	1.84	14.31
Eastern Iowa.	27	.72	14.70
Missouri.	85	2.72	14.82
Average.	77	1.88	14.13

The amount of pork produced behind the yearlings, 77 pounds per steer (see Table 15), is very nearly as large as for the 2-year-old cattle. It varies from 93 pounds per steer in Burt County to 27 pounds in eastern Iowa. The pork per bushel of corn fed to a yearling (1.88 pounds) runs higher than for the 2-year-old cattle. This is partly due to the fact that some of the yearlings receive more corn than they could readily consume, getting nearly as much grain as the 2-year-olds, and partly to the fact that many of these cattle were fattened on pasture. The pork per bushel of corn fed to a yearling varies from 2.7 pounds in Missouri to seven-tenths of a pounds in eastern Iowa.

The average value of a pound of pork produced behind a yearling was 14 cents. It was lowest in Burt County (13 cents per pound), as the cattle there were sold the earliest. The price of pork for the yearlings in eastern Iowa and Missouri is very nearly the same.

The manure credit, $2.15, is about 70 cents more than for the 2-year-olds, because of the long period the cattle were kept in the feed yards. There was an average of two loads produced per steer.

ANALYSIS OF THE PROFITS REALIZED.

The average profit on all of the yearlings is $8.63 (see Table 16), varying from $7.98 in Burt County to $10.70 in Missouri.

TABLE 16.—*Profits and losses in fattening a yearling steer for market.*

District.	Final cost.	Sale price.	Profit with pork.	Profit without pork.	Loss without pork.
Burt County, Nebr.	$101.32	$109.30	$7.98	.....	$3.81
Pottawattamie County, Iowa.	116.10	125.59	9.49	.....	2.79
Eastern Iowa.	110.92	116.46	5.54	$1.64	.....
Missouri.	99.81	110.51	10.70	.....	1.32
Average of all.	106.86	115.49	8.63	.....	1.85

This is about $4 per head less than the profit obtained on the 2-year-olds. When the credit for pork is deducted, the eastern Iowa yearlings are the only ones to show a profit ($1.64 a head);

for the other three districts the loss ranges from $3.81 for Nebraska to $1.32 for Missouri. The average loss per steer for the four districts when the credit for pork is deducted is $1.85.

The margin of profit, or spread, is $3.74 (see Table 17), or about 15 cents less than for the 2-year-old steers. The necessary margin of profit is $2.91, varying from $2.49 in Missouri to $3.26 in Pottawattamie County, Iowa.

TABLE 17.—*The necessary margin and the margin obtained in fattening yearling cattle for market.*

District.	Initial cost per hundredweight.	Final cost per hundredweight.	Sale price per hundredweight.	Necessary margin.	Margin obtained.
Burt County, Nebr.	$7.38	$10.11	$10.91	$2.78	$3.53
Pottawattamie County, Iowa.	7.58	10.84	11.73	3.26	4.15
Eastern Iowa.	7.52	10.68	11.21	3.16	3.69
Missouri.	7.13	9.62	10.66	2.49	3.53
Average of all.	7.40	10.31	11.14	2.91	3.74

The cost per pound of gain (see Table 18) is 16.1 cents where the pork credit is included. The cost is very uniform for the Nebraska and Iowa districts. In Missouri the cost is 14.3 cents. Deducting the pork credit, the average cost of a pound of gain for the four districts is $0.03 greater, or 19.1 cents. This cost ranges from 17.7 cents in Missouri to 20.8 cents in Burt County.

TABLE 18.—*Cost of a pound of gain in fattening yearling cattle with and without pork.*

District.	Pounds gained.	Cost of fattening.		Cost per pound of gain.	
		With pork.	Without pork.	With pork.	Without pork.
Burt County, Nebr.	293	$48.97	$60.76	$0.167	$0.208
Pottawattamie County, Iowa.	363	62.45	74.73	.172	.206
Eastern Iowa.	381	61.42	65.82	.161	.171
Missouri.	360	51.55	63.57	.143	.177
Average of all.	346	55.73	66.21	.161	.191

FINISHING FEEDER CALVES AS BABY BEEF.

Records were obtained on 33 droves of calves that were purchased at market or from adjoining farms, and were finished as baby beeves. These calves were mostly purchased shortly after they were weaned, or in November and December, at which time they averaged in weight 452 pounds (see Table 19). They were kept for an average period of 212 days, during which time they made a gain of 346 pounds per head, or 1.6 pounds daily.

TABLE 19.—*Purchase and sale dates and gains made by baby beeves.*

Locality.	Droves.	Number in drove.	Purchase date.	Sales date.	Days kept.	Initial weight per head.	Final weight per head.	Gain per head.	Daily gain per head.
						Pounds.	*Pounds.*	*Pounds.*	*Pounds*
Nebraska	15	30	Nov. 24	May 25	181	472	774	302	1.7
Iowa	10	25	Dec. 18	June 15	187	461	801	340	1.8
Missouri	8	54	Nov. 21	Sept. 28	307	404	841	437	1.4
Average of all	[1]33	34	Nov. 30	July 2	212	452	798	346	1.6

[1] Total.

NEBRASKA.

The Burt County calves were purchased late in November at an average weight of 472 pounds. They were mostly fattened during the winter months and were sold late in May, weighing 774 pounds per head. They gained 302 pounds per head, or 1.7 pounds daily.

The average ration for each baby-beef animal (see Table 20) is: Corn 1,675 pounds (30 bushels), oats 353 pounds, linseed-oil meal 19 pounds, alfalfa hay 1,491 pounds, and straw 169 pounds.

TABLE 20.—*Kind and average quantity of feed fed to a baby-beef animal.*

Locality.	Corn.	Oats.	Oil meal.[1]	Molasses feed.	Miscellaneous concentrates.	Hay.	Silage.	Straw.	Stalks.	Stover.	Pasture.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Acre.*	*Acre.*	*Month.*
Nebraska	1,675	353	19	.....	.....	1,491	.....	169	.....	.....	0.1
Iowa	1,765	98	136	98	.....	1,197	414	169	0.33	0.03	.4
Missouri	1,614	316	394	110	49	552	569	104	.10	.04	5.0
Average of all	1,669	267	145	56	12	1,174	263	153	.13	.02	1.4

[1] Including linseed-oil meal and cottonseed meal.

IOWA.

As only 10 records were obtained in Iowa, 7 of which were from Pottawattamie County, they are all included in one group. The calves were mostly purchased in November (the average purchase date being Nov. 8) at an average weight of 461 pounds. They were kept a little over six months, during which time they gained 340 pounds per head, or 1.8 pounds daily.

The average ration per calf is: Corn 1,765 pounds (31.5 bushels), oats 98 pounds, linseed-oil meal 62 pounds, cottonseed meal 74 pounds, hay 1,197 pounds, silage 414 pounds, straw 169 pounds, and small amounts of other feeds as shown in Table 20.

MISSOURI.

The eight records obtained on baby-beef animals in Missouri were mostly from Carroll County. The calves were bought approximately at the same time as those in Nebraska and Iowa at an average weight of 404 pounds. They were kept for a little over 10 months, during which time they gained 437 pounds per head, weighing 841 pounds at market.

The average ration for these calves is: Corn 1,614 pounds (29 bushels), oats 316 pounds, cottonseed meal 285 pounds, linseed-oil meal 109 pounds, molasses feed 109 pounds, hay 552 pounds, silage 569 pounds, bran 13 pounds, shorts 24 pounds, and hominy feed 12 pounds. They were also run on pasture for a period of five months in the summer, being sold from pasture in the latter part of September.

COST OF FATTENING.

The various costs and credits in finishing baby-beef animals for market are shown in Table 21. The average gross cost of the calves when fat is $99.04. The feed cost ($50.45) is the heaviest item of expense, making 51 per cent of the gross cost. In this group the initial cost, which averaged $37.78, was only 38 per cent of the total. Labor and interest each amounts to 3 per cent, while equipment and marketing each amounts to 2 per cent of the total charge.

TABLE 21.—*Items of expense and of credit in finishing a baby-beef animal for market.*

District.	Number of droves.	Charges.							Gross cost.	Credits.			Net cost.
		Initial cost.	Feed cost.	Labor.	Equipment.	Interest.	Miscellaneous.	Marketing.		Pork.	Manure.	Total.	
Nebraska	15	$40.16	$46.10	$3.45	$2.44	$2.32	$0.84	$1.75	$97.06	$6.44	$1.50	$7.94	$89.12
Iowa	10	37.48	52.24	2.61	2.10	2.12	.62	2.06	99.13	7.07	1.55	8.62	90.51
Missouri	8	33.73	56.40	3.35	1.75	3.54	.88	3.04	102.69	5.54	.44	5.98	96.71
Average of all.	[1] 33	37.78	50.45	3.14	2.16	2.53	.83	2.15	99.04	6.41	1.26	7.67	91.37

[1] Total.

The average pork credit is $6.41, with but little variation for the three States, while the manure credit is $1.26. Deducting the total credits ($7.67) we have $91.37 as the cost of the calves at market.

These costs have been worked up in the same manner as those for the two preceding groups. The feed costs, which are shown in Table 22, are very nearly the same as those for the yearling and 2-year-old cattle.

TABLE 22.—*The average farm value of the different feeds given the baby-beef animals.*

Locality.	Corn, per bushel.	Oats, per bushel.	Oil meal, per ton.[1]	Molasses feed, per ton.	Miscellaneous concentrates, per ton.	Hay, per ton.	Silage, per ton.	Straw, per ton.	Stalks, per acre.	Stover, per acre.	Pasture, per month.
Nebraska	$1.12	$0.48	$44.29	.....	.....	$10.50	.....	$2.00	.....	.....	$2.22
Iowa	1.14	.52	44.83	$38.17	.....	11.70	$6.12	3.38	$0.92	$7.25	.99
Missouri	1.12	.50	42.24	43.50	$40.60	8.65	5.00	5.36	.50	4.00	.85
Average of all	1.13	.49	43.73	40.84	40.60	10.43	5.45	3.56	.82	6.60	1.00

[1] Including linseed-oil meal and cottonseed meal.

Corn is valued at $1.13, as against $1.04 for the 2-year-old cattle and $1.07 for the yearlings, this difference being largely due to the calves being held longer before marketing. Silage, valued at $5.45 per ton, is much cheaper than in the other groups. This difference in price is due to the fact that silage in Carroll County was valued at only $5 a ton, this figure being lower than for the other districts.

The silage fed the Iowa calves was given approximately the same price as for the other two classes of cattle. Hay is valued at $10.43, and for the same reason is cheaper than that fed in the other groups. Labor shows an average of 11 hours of man labor and 10 hours of horse labor.

The amount of pork produced behind the calves, 45 pounds per baby-beef animal, is naturally much less than for the yearlings and 2-year-olds. The pounds of pork per bushel of corn fed to a calf ranged from 0.53 pounds in Iowa to 1.4 in Nebraska. The average value of pork per pound was 13.2 cents per pound in Missouri, and 14.5 cents in Iowa.

TABLE 23.—*Pork produced per baby-beef animal and per bushel of corn fed to a baby beef, and the value per pound of the pork sold.*

District	Pounds of pork per steer.	Pounds of pork per bushel of corn fed.	Price of pork per hundredweight.
Burt County, Nebr	45	1.39	$14.35
Iowa	48	1.30	14.53
Missouri	43	.53	13.21
Average of all	45	1.14	14.14

ANALYSIS OF THE PROFITS MADE.

The profit on the calves for all three States (See Table 24) averages $2.05. This varied from a profit of 8 cents in Burt County to $5.77 in Iowa. When the credits for pork are deducted, all of the calves show a loss, the average loss being $1.40 in Iowa, $1.43 in Missouri, and $6.36 in Nebraska.

TABLE 24.—*Profits and losses in fattening a baby-beef animal.*

	Final cost.	Sale price.	Profit with pork.	Profit without pork.	Loss without pork.
Burt County, Nebr.	$89.12	$89.20	$0.08	.....	$6.36
Iowa.	90.51	96.28	5.77	.....	1.40
Missouri.	96.71	97.81	1.10	.....	1.44
Average of all.	91.37	93.42	2.05	.....	4.36

The lower profits obtained for the baby beeves, as compared with the yearlings and 2-year-old cattle, is partly due to the pork credits being much lower, and partly to the fact that, while they needed a slightly larger margin between the buying and selling price than the other cattle, the margin actually obtained was 41 cents per hundredweight less than for the yearlings and 56 cents per hundredweight less than for the 2-year-olds. The necessary margin for all the calves is $3.08.

TABLE 25.—*The necessary margin and the margin obtained in fattening baby-beef animals.*

	Initial cost per hundredweight.	Final cost per hundredweight.	Sale price per hundredweight.	Necessary margin.	Margin obtained.
Burt County, Nebr.	$8.51	$11.51	$11.52	$3.00	$3.01
Iowa.	8.14	11.26	11.98	3.12	3.84
Missouri.	8.35	11.60	11.63	3.15	3.28
Average of all.	8.36	11.44	11.69	3.08	3.33

The cost of a pound of gain (See Table 26) is 15.4 cents, being 4.4 cents less than for the 2-year-old cattle, and 0.7 of a cent less than for the yearlings. If the credit for pork is deducted, the cost of a pound of gain becomes slightly greater, varying from 15.7 cents per pound in Missouri to 18.4 cents in Nebraska.

TABLE 26.—*Cost of a pound of gain in fattening baby-beef animals, with and without pork.*

States.	Pounds gained.	Cost of fattening.		Cost per pound of gain.	
		With pork credit.	Without pork credit.	With pork credit.	Without pork credit.
Burt County, Nebr.	302	$48.96	$55.40	$0.162	$0.184
Iowa.	343	53.03	60.10	.155	.175
Missouri.	437	62.98	68.52	.144	.157
Average of all.	347	54.59	60.00	.154	.173

FINISHING CALVES AS BABY BEEF ON FARMS WHERE THEY ARE RAISED.

Records have been obtained for three successive years on the cost of finishing baby-beef animals by Corn Belt farmers who make a business of finishing calves of their own raising. One hundred and twenty-four such records, embracing 4,004 calves, were obtained during the years 1914–1916 in Iowa, northern Missouri, eastern Kansas, eastern Nebraska, and in Hancock County, Ill. (near the southeastern corner of Iowa).

A severe drought prevailed over a considerable portion of the southern half of the Corn Belt in the summer of 1913. This drought was especially severe in Missouri and Kansas, where it destroyed much of the corn and greatly shortened the supply of forage. Because of the shortage of feed there was very little finishing of cattle in these States in the winter of 1913–14, so that there were no baby-beef records from Kansas and only two from Missouri for that year. In these parts of Nebraska, Iowa, and Illinois, where the baby-beef records were taken, the drought of 1913 did not seriously affect feeding operations, though there was a slight shortage of rough feeds. The summer of 1914 was much more favorable; although it was unusually dry and hot and corn suffered severely in portions of southwestern Iowa and southeastern Nebraska. From a feeding standpoint the season of 1914–15 can be considered as normal.

The summer of 1915, on the other hand, was unusually wet, while an early frost damaged much of the corn, especially in northern Iowa and Nebraska. A number of farmers visited, who made a practice of fattening their calves as baby beef, found it necessary to hold these calves over for another year, as there was not enough hard corn to fatten them properly.

A little over one-half of the records (see Table 27) were taken in Iowa. Many of the Iowa farmers who have experienced difficulty in purchasing steers of good quality at a price that they felt would leave them any margin of profit have taken up the practice of maintaining breeding herds for the raising of their own feeders. The farms visited were widely distributed over the State, although the larger number of records were taken in the southwestern part. They were typical of the better class of Iowa farms where stock raising or finishing is combined with grain farming, except that they were generally larger than the average, and had a proportionately larger acreage in pasture. They averaged 337 acres, of which 114 acres were in pasture. It is noticeable that only two of the records were from tenant farmers.[1] The average tenant does not have sufficient

[1] One of these men was operating a large farm as a tenant for the first two years of the study. By the beginning of the third year this man had moved on to his own farm.

capital with which to follow this type of business. An average of 32 calves were fattened on each farm.

TABLE 27.—*Size of farms visited, acreage in pasture, and number of calves fattened as baby beef.*

Locality	Number of records.	Averaga size of farm.	Average size of pasture.	Number of calves.	Calves per farm.
		Acres.	*Acres.*		
Iowa	69	337	113.7	2,172	32
Nebraska	20	442	134.2	705	35
Missouri	15	365	168.2	379	25
Kansas	15	859	572.3	585	39
Illinois	6	336	144.2	163	27
Totals and averages	125	.....	.....	4,009	32

Twenty records were obtained in eastern Nebraska, these being scattered throughout the eastern quarter of the State. The farms visited were representative of the general types of farming found in that portion of Nebraska, except that they were larger than the average, containing 442 acres. The average number of calves fattened yearly on a farm was a little over 35, this being a trifle more than for the Iowa farms.

The average size of the 15 farms of which records were taken in Missouri was 365 acres. One hundred and sixty-eight acres, or 46 per cent of the farm, is in pasturage. These farms had the smallest droves, there being an average of but 25 calves per farm.

About one-half of the records obtained in Kansas were taken in the northeastern part, where farming conditions are like those found in southeastern Nebraska. The remainder were taken in the so-called limestone section, where the broken character of the country makes it necessary to keep the greater part of the land in pasture. The average size of the farms visited was 859 acres, of which 572, or 66⅔ per cent, was devoted to pasturage.

The Illinois records were taken in Hancock County and counties adjacent to it. Here the general type of farming is similar to that found on the Iowa farms. The farms were of the same general size as the Iowa farms, but had a little larger area devoted to pasture. The average number of calves per farm was 27, or a little lower than the average for the Iowa farms. The records were taken in connection with an investigation on the cost of producing beef animals in the Corn-Belt States.

In this investigation the cost of producing baby-beef animals was worked out in detail from the time the calf is born until sold. The part of the study that treats of the cost of raising the calf to weaning

FIG. 7.—Baby-beef animals grown and raised on a southwestern Iowa farm, costing when finished $106.75. The average cost for three years is $108.85.

time is included in the report on the cost of producing beef animals in the Corn-Belt States.[1]

For our present purpose the record on the calves begins with their cost at weaning time, this being considered as the initial cost. In these particular records there are no figures for initial weight, as very few of the calves were weighed at the time they were put in the feed lot.

These calves were fed for an average period of 7.8 months (see Table 28) and were marketed when approximately 15 months old, at which time they weighed 829 pounds per head. There was little variation in this weight from year to year.

TABLE 28.—*Date of sale, age, and weight of the baby-beef animals.*

Year.	Date of sale.	Age at sale.	Time on feed.	Weight at sale.
		Months.	*Months.*	*Pounds.*
1914	June 24	14.0	7.2	828
1915	July 15	14.9	7.8	737
1916	July 24	15.3	8.1	823
Average for three years	July 17	14.7	7.8	829

COST OF FATTENING.

The final cost of these calves is based on all expenses from the date of birth to date of sale. The average final cost for the three years for which the study was conducted is $73.81 (see Table 29), being very nearly the same for each year.

TABLE 29.—*Items of expense and of credit in finishing a home-raised calf for baby beef.*

Year.	Number of calves per farm.	Costs.							Gross cost.	Credits.			Net cost.
		Initial cost.	Feed.	Labor	Equipment.	Interest.	Miscellaneous.	Marketing.		Pork.	Manure.	Total credits.	
1914	30.0	$38.27	$35.11	$2.66	$1.11	$2.07	$0.36	$1.92	$81.50	$2.52	$5.45	$7.97	$73.53
1915	30.3	36.21	34.97	2.49	.80	2.19	.42	2.31	79.39	1.91	5.35	7.26	72.13
1916	34.2	36.63	38.14	3.19	.81	2.31	.57	1.93	83.58	3.44	5.01	8.45	75.13
3-year average	32.0	36.84	36.47	2.85	.87	2.22	.47	2.05	81.77	2.75	5.21	7.96	73.81

Figure 7 shows an extra good drove of baby beeves that were fattened on the same farm on which they were grown, weighed 964 pounds, and cost $106.75, when finished.

The initial cost (cost at weaning time) is $36.84, this being slightly more than the 1915 and the 1916 records, and approximately $1.50

[1] The methods of procedure in taking these records have been described in a report which is entitled "A Three-Year Study on the Cost of Growing Beef Animals in the Corn-Belt States." These methods have also been described in report No. 111, Office of the Secretary, U. S. Department of Agriculture, entitled "Cost of Producing Beef Animals in the Corn-Belt States."

less than for 1914. The feed cost ($36.47) is very nearly as large as the initial cost. For 1914 and 1915 the feed cost is less than the initial cost, while for 1916 it is slightly larger. Each of these two items constitutes 45 per cent of the gross cost ($81.77) of fattening baby-beef animals. Labor and interest each make up about 3 per cent of the total cost, while marketing amounts to about 2½ per cent, equipment 1 per cent, and miscellaneous charges one-half of 1 per cent.

The pork credit is $2.75, varying from $1.91 in 1915 to $3.44 in 1916. The manure credit is a little over $5 a head.

METHODS OF DETERMINING COSTS.

ITEMS OF EXPENSE.

The various items of expense were determined in much the same manner as for the other cattle, although there are a number of minor differences.

Initial cost.—The initial cost of the calves is their cost at weaning time. They are usually weaned during the latter part of October and the early part of November. On a number of farms additional calves were purchased, so that they could be fattened in even carload lots. Additional calves bought thus have been averaged in with the calves that were raised.

Feed.—The ration fed a baby-beef animal for each of the three years is shown in Table 33. Taking the three-year average, each calf received the following ration: Corn 2,125 pounds (38 bushels), oats 170 pounds, linseed-oil meal and cottonseed meal 107 pounds, bran 8 pounds, molasses feed (including a small amount of molasses) 26 pounds, hay 1,150 pounds, straw 40 pounds, silage 658 pounds, fodder 0.02 of an acre, stover 0.011 acre, pasture 48 days.

TABLE 30.—*Kind and quantity of feed fed to a home-raised calf from weaning time until marketed as baby beef.*

Year.	Corn.	Oats.	Oil meal.[1]	Bran.	Molasses feed.[2]	Hay.	Straw.	Silage.	Fodder.	Stover.	Pasture.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Acres.*	*Acres.*	*Days.*
1914	2,021	230	59	19	16	1,318	22	546	0.04	0.015	26
1915	1,988	166	75	2	23	968	110	490	.04	0	59
1916	2,265	144	151	8	34	1,209	0	830	.01	.018	50
3-year average	2,125	170	107	8	26	1,150	40	658	.02	.011	48

[1] Including linseed-oil meal and cottonseed meal.
[2] Including alfalfa meal and a small quantity of molasses.

The average price of corn for the three-year period is 64 cents per bushel (see Table 31), it being 59 cents in 1914 and 60 cents and 68 cents, respectively, in the two later years. The average value of hay was $9.50 per ton, being $10.30 in 1914, $11 in 1915, and only $8 in

1916, when there was an abundance of cheap roughage. The prices of the other feeds were fairly constant during the three-year period, silage being valued at approximately $4 per ton and linseed-oil meal and cottonseed meal at $35.60 and $31 per ton, respectively.

TABLE 31.—*Value of the feeds given home-raised baby beef calves.*

Year.	Corn per bushel.	Oats per bushel	Oil-meal per ton.[1]	Bran per ton.	Molasses feed per ton.	Hay per ton.	Straw per ton.	Silage per ton.	Fodder per acre.	Stover per acre.	Pasture per month.
1914	$0.59	$0.35	$31.50	$22.50	$30.00	$10.30	$5.00	$4.14	$23.60	$6.00	$0.91
1915	.60	.40	32.45	23.50	28.75	11.00	3.88	3.95	24.88	.....	.78
1916	.68	.37	34.86	20.00	31.00	8.00	8.00	4.17	27.50	5.00	.87
3-year average	.64	.38	33.36	21.68	30.00	9.50	3.71	4.09	25.82	5.50	.84

[1] Including linseed-oil meal and cottonseed meal.

Labor.—The labor costs on these calves were determined in the same general manner as for the other cattle except that a rate of 15 cents is used for man labor. The average price of horse labor is 10 cents per hour.

Equipment charge.—The equipment charge averages 87 cents, being considerably less than that for the baby beef calves which were bought ($2.16). This difference is largely due to the difference in methods of obtaining the records. In these records the baby beef animals are prorated in with the breeding herd on the animal unit basis; so that the most of the expense for the equipment is charged against the breeding herd. Again, in this investigation there are a number of items of equipment, such as hay racks, feed bunks and minor equipment, for which no charges are included. Had the equipment charges on these cattle been worked up in the same manner as for the other fattening cattle they would have been practically the same.[1]

Interest.—Interest is figured in the same manner as for the other cattle, a 6 per cent charge being made against the initial value, plus one-half the feed cost. The average interest charge is $2.22.

Miscellaneous charges.—The miscellaneous charges, which amount to 47 cents, are much less than for the baby beef calves that were bought. That this charge is so much lower than that for the other calves is partly due to the smaller expenses, as there were no trav-

[1] There are a number of minor differences in figuring several of the items of expense and credit for these animals, as compared with the other fattening animals. The first investigations on the cost of producing and finishing animals was made in 1914. This has been continued up to the present time. As the work was continued from year to year it was realized that not all of the charges were obtained in the first year's work, which was really a preliminary study. As one of the objects of continuing the investigation from year to year was for the purpose of studying the variations that might occur, it seemed best to make the records for the following years comparable with those for 1914. When the investigation on the cost of finishing beef animals for market was started a number of small items of expense that had previously been omitted were included, so that as accurate a statement as possible could be made of the items of expense and credit.

eling expenses in purchasing, and partly to the fact that some of the minor items of expense, such as telegrams, association dues, etc., figured against the other cattle, are, for reasons previously explained, not included in this study.

ITEMS OF CREDIT.

Pork credit.—On the farms where these calves were fattened the hogs were usually given the run of all the yards, and were frequently allowed to run with the breeding herd. On many of the farms they run in mixed bunches. Because of these conditions it was impossible to form an accurate estimate of the amount of pork produced. It was therefore assumed that 1 pound of pork would be produced for each bushel of shelled corn fed to a baby beef animal, and one-half pound of pork per bushel of ground corn or corn and cob meal. This estimate is based on the result of a three-year experiment conducted at the Indiana Agricultural Experiment Station.[1]

Manure credit.—The manure credit in this investigation is an assumed figure. The total number of loads of manure produced on the farm were prorated among all of the animals. In this prorating it was assumed that a baby beef animal produced as much as one of the breeding animals. As this figure has not been worked out for each individual farmer it is very probably too high. In fact, investigations made since this figure was adopted indicate very strongly that such is the case. The manure credit for these animals is $5.21, as against $1.26 for the purchased calves. The total credit for these calves amounts to $7.96, as against $1.26 for the baby beef animals that were purchased.

ANALYSIS OF PROFITS AND LOSSES.

There was an average profit of $2.20 per head for the three years, or 45 cents per hundredweight. The calves fattened in 1914 cost $1.42 a head, or 39 cents per hundredweight (see Table 32), more than they brought. In 1915 and 1916 there were fair profits ($2.18 and $3.78).

TABLE 32.—*The profit and loss per head on the baby beef animals for three years.*

Year.	Net cost.	Sale price.	Profit.	Loss.	Profit without pork.	Loss without pork.
1914	$73.53	$72.11		$1.42		$3.94
1915	72.13	74.31	$2.18		$0.27	
1916	75.13	78.91	3.78		.34	
Average for three years	73.81	76.01	2.20			.55

[1] Bulletin 146, Purdue University, Indiana Agricultural Experiment Station p. 605.

The cost of these calves at market is $8.90 per hundredweight. The calves fattened in 1915 were produced the most cheaply, averaging $8.62 per hundredweight (see Table 33), while those finished in 1916 were the most expensive, costing $9.13 per hundredweight. The average sale price per hundredweight is $9.17, which is 27 cents per hundredweight greater than the cost price.

TABLE 33.—*The cost, sale price, and profit and loss per hundredweight for home-raised calves fattened as baby beef.*

Year.	Final cost per hundredweight.	Sale price per hundredweight.	Profit per hundredweight.	Loss per hundredweight.
1914	$8.88	$8.71	.....	$0.17
1915	8.62	8.88	$0.26	.....
1916	9.13	9.59	.46	.....
Average	8.90	9.17	.27	.....

While the figures presented indicate that the calves that were produced and finished on the same farm made a fair profit for two out of the three years for which data were obtained, they do not take into consideration the fact that under normal circumstances a farmer who is growing and feeding his calves for market must conduct his business very carefully if he is to make a profit. Between twelve and fifteen hundred farmers who were engaged either in the growing of feeder cattle or the fattening of cattle, or a combination of the two enterprises, have been visited in these investigations. The men engaged in the enterprise of raising and finishing baby-beef animals were generally the best and most careful of the farmers visited. In spite of this, 55 out of 126, or 44 per cent of the droves of baby beef animals that were fattened on the farms on which they were produced were sold at a loss. In some cases this loss was as high as or even higher than $25 a head.

The data show that in 1914, although the baby beef animals all taken together averaged a loss, 12 farmers out of 26 produced their calves at a profit. The profits of these 12 farmers were, however, very small.

TABLE 34.—*The number of farmers making a profit and number making a loss raising baby beef, by years.*

Year.	Number of farms.	Number making profit.	Number losing.
1914	21	12	14
1915	42	25	17
1916	58	34	24
Total	126	71	55

In 1916, when the highest profits were obtained, only 34 farmers out of 58 made a profit. In this case the average loss was comparatively small. The data show further that under normal ecenomic conditions only those farmers whose farms are adapted to this type of business can follow it successfully. Even then it is necessary that their plans be not too seriously deranged by unforeseen conditions, such as contagious abortion in the herd or partial crop failures.

SUMMARY.

Records were obtained from 188 farms in Nebraska, Iowa, and Missouri, on 158 droves (9,541 head) of 2 and 3 year old steers, on 47 droves (1,530 head) of yearlings, and 33 droves (1,135 head) of calves purchased and fattened. One hundred and twenty-five records (for 4,004 calves) were also obtained during a three-year period on the cost of finishing calves on the farms where they were raised.

2-YEAR-OLD STEERS.

The 2-year-old steers, in general, were bought in the fall at an average weight of 938 pounds. They were kept six months and gained 293 pounds per head, or 1.6 pounds daily. The gains varied from 265 pounds in eastern Iowa, where the cattle received an average of 20.75 bushels of corn, to 359 pounds in Clinton County, where they were fed 54.3 bushels each.

The initial cost was $71.94 a head ($7.67 per hundredweight), varying from $64.52 in Carroll County to $81.06 in eastern Iowa. The feed cost was $56.73, these two items making 91 per cent of the total cost, $141.17. The final (net) cost, deducting credits for pork ($9.70) and for manure ($1.44), was $130.03 per head, or $10.56 per hundredweight.

The average profit for a 2-year-old steer was $12.32. This varied from $8.55 in Burt County, Nebr., to $15.93 in Saline County, Mo.

In Carroll County, Mo., where corn was priced at 80 cents, the profit was $23.76 a steer. Charging the corn at its market value at time of feeding ($1.06 per bushel) this profit is reduced to $13.26. Deducting the credit for pork, the average profit is $2.62. This varies from a loss of $3.70 in Clinton County, where large amounts of corn were fed, and omitting Carroll County, to $7.44 in Saline County.

The margin of profit, or spread, between the initial cost and the selling price per hundredweight ($3.89), was larger than common, the average margin received at Chicago for the 10-year period of 1906–1917 being $2 a hundredweight. The necessary margin, if the steers were to break even, ($2.89) is greater by 89 cents than the margin received at Chicago for the 10-year period.

YEARLINGS.

The yearling cattle, in general, were bought in the fall at an average weight of 691 pounds. They were fed a little over seven months and gained 346 pounds per head or 1.6 pounds per day. Their initial cost was $51.13 a head ($7.40 per hundredweight). The feed cost ($56.05) was little greater than the purchase price, being greater in all districts except Burt County, where it was about the same. These two charges made 90 per cent of the total cost ($119.49). The final cost after credits for pork ($10.48) and manure ($2.15) were deducted, was $106.86.

The profit per yearling was $8.63. Deducting the credit for pork there was an average loss of $1.85 a head, which varied from a loss of $3.81 a head in Burt County to a profit of $1.64 in eastern Iowa. The margin of profit was $3.74 per hundredweight, while the necessary margin was $2.91 per hundredweight.

CALVES BOUGHT AND FATTENED.

The calves that were bought were mostly gotten in the late fall or early winter at an average weight of 452 pounds. They were kept seven months, during which time they gained 346 pounds or 1.6 pounds daily.

The initial cost was $37.78 per head ($8.36 per hundredweight). The feed bill ($50.45) was considerably greater than the initial cost, the two making 89 per cent of the total cost of $99.04. The final cost at market was $91.37 a head, or $11.44 per hundredweight.

The profit obtained varied from $0.08 a head in Nebraska to $5.77 in Iowa. The average loss for the three States, when the pork credit ($6.41) is deducted, is $4.36. The margin of profit per hundredweight was $3.35. The necessary margin was $3.08.

CALVES FINISHED ON FARMS WHERE GROWN.

The calves that were finished on the farms where they were raised cost at weaning time $36.84 a head. The feed bill ($36.47) was practically the same, there being no great variation in either charge from year to year. The final cost of these calves when marketed at 15 months old (weighing 829 pounds) was $73.81, or $8.90 per hundredweight.

The calves marketed in 1914 cost $1.42 a head more to produce than they brought. In 1915 and 1916 they made a profit of $2.18 and $3.78, respectively. Deducting a credit for pork, there was a loss of $3.94 on the 1914 calves while the profit on the others was 27 cents a head in 1915 and 34 cents a head in 1916.

While there was a profit for two out of the three years for which records are presented, nevertheless in 55 out of these 126 droves, or 44 per cent, the baby beeves cost more to produce than their sale value.

COST PER POUND OF GAIN.

The cost of a pound of gain for the 2-year-old steers was 19.8 cents, ranging from 18.2 cents in Burt County to 23.2 cents in Clinton County. In Carroll County the cost, with corn at 80 cents, was 15.6 cents a pound, but when the corn is charged at its sale value this cost is 18.7 cents. The cost of a pound of gain without pork was 23.1 cents, varying from 18.8 cents in Carroll County to 28.2 cents in Clinton County.

The cost of a pound of gain for the yearling cattle was 16.1 cents with pork, and 19.1 cents without pork. The cost of a pound of gain for the baby-beef animals was 15.4 cents. Deducting the credit for pork this cost becomes 17.3 cents per pound of gain.

COST OF FATTENING CATTLE.

CHAPTER II.

A FIVE-YEAR STUDY OF THE COST OF FINISHING CATTLE IN ILLINOIS.

By R. H. Wilcox,

Assistant in Food Supply Investigations,
Bureau of Markets.

Data gathered and furnished by the Animal Husbandry Department, University of Illinois.

SOURCE OF MATERIAL.

The data presented in this report were gathered by members of the Animal Husbandry Department of the University of Illinois, in the course of the investigational studies of that department during the five years 1912–1917.[1]

The data were taken on a statistical route comprising eight farms in the vicinity of Carthage, in Hancock County, Ill., with the purpose of making a study of the systems of management and a detailed cost investigation in a typical cattle-raising and feeding section of the State. In Bureau County, from March 1, 1916, to March 1, 1917, detailed cost data were gathered on one farm that shipped to market an average of a carload of 3-year-old steers a week. This farm will hereinafter be referred to as the "large farm."

From among the cattle finished on the eight farms in Hancock County 15 droves of 2-year-old steers were purchased and fed out in such a manner that they could be kept as a separate enterprise, making it possible to measure in detail the factors which went into making up their cost.

[1] Acknowledgment is especially due Prof. Herbert W. Mumford, Chief of the Department of Animal Husbandry, University of Illinois, who supplied the material from which this report is made. While connected with the Animal Husbandry Department of the University of Illinois the author assisted in gathering and tabulating portions of the data contained in this report.

YEARS COVERED.

Cost figures touching upon the feeding of cattle during one season do not bring out the results of changing conditions from year to year; especially has this been true since the 1913–14 feeding year. With a view to showing the results of changing conditions, figures are herein presented including the costs over a five-year period, 1912–1917, covering the fattening of 15 droves, including 667 head of 2-year-old steers in Hancock County, and 1,150 head during the 1916–17 feeding year on the large farm.

METHODS USED IN GATHERING COST DATA.

The farms on the Hancock route were visited daily by a route man in the employ of the State, who weighed the feed, kept record of the number of man-hours and horse-hours used daily in each operation, and secured a complete daily cash receipt and disbursement statement. The man labor was charged at actual cost, including cash wages, board and additional perquisites, and horse labor at the cost of maintaining horses for work. Feeds were charged to cattle at the monthly local market prices for the month during which the feed was eaten. This field material after being assembled by the route man and forwarded to the Animal Husbandry Department was compiled and treated as investigational data.

The proprietor of the large farm was furnished with blank forms and instructions which he followed in making his weekly report. These reports, as mailed to the Animal Husbandry Department, carried in detail the cash receipt and disbursement statement, the weight of animals and feeds, the local market price of feeds, the cost and amount of labor, and other items of expense and of credit. A duplicate of all commission companies' statements was obtained, and if the cattle were purchased or sold elsewhere their weight and date of sale were forwarded by means of specially prepared blanks. As a means of checking up and keeping closely acquainted with methods and statements on this farm, the farm was visited once a month by an agent of the University.

TYPE OF FARMING IN HANCOCK COUNTY.

The type of farming existing in Hancock County allows of diversity of crops and diversity of salable farm products. The average-sized farm contains in the neighborhood of 130 acres, about 20 acres of this being in permanent pasture. Winter wheat is the only crop raised for the market, the other crops usually being marketed through live stock. Approximately one-fifth of the farm area is devoted to wheat raising, the remainder of the farm being in corn, clover and timothy, crops which work easily into a good rotation to aid in maintaining the soil fertility, and which lend themselves readily to winter feeding.

FIG. 1.—A feed yard typical of many found in west central Illinois.

METHODS OF FEEDING.

HANCOCK COUNTY.

Feeder cattle were brought into this section from Chicago or Omaha and were carried on stalk fields for a few days before putting them into the feed lot, where they went on to a ration consisting principally of corn and a leguminous forage, supplemented with cottonseed meal and, occasionally, silage. Methods of the Hancock County cattle feeders are followed pretty generally throughout the north and west section of the State, comprising the principal finishing areas. (See fig. 1.)

The average length of feeding period for the droves investigated was 151 days, during which time a steer consumed on an average 2,963 pounds (53 bushels) of shelled corn, 138 pounds of cotton-seed meal, 103 pounds of molasses feed, 836 pounds of leguminous roughage, principally clover, and 1,774 pounds of miscellaneous roughages. (See Table 1). The prices of these feeds are shown in Table 2.

TABLE 1.—*The quantities of feeds consumed by a steer during the entire feeding period.*

Feed.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.	Large farm, 1916–17
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Shelled corn	3,643	2,795	2,327	3,152	2,900	2,963	1,236
Oats	1	.....	4	.....	1	3	.....
Cottonseed meal	274	221	108	.....	89	138	292
Molasses feed	.....	13	121	381	.....	103	.....
Timothy and clover hay	360	628	185	1,941	754	774	71
Soy beans	200	.....	68	.....	.....	53	.....
Cowpeas	43	.....	.....	.....	.....	9	.....
Silage	2,095	.....	675	.....	.....	554	.....
Straw (bedding)	140	117	99	3,084	288	74	.....
Stover	8,758	977	745	.....	.....	1,096	.....
Fodder corn	83	.....	.....	.....	.....	17	.....
Stalks	.....	164	.....	.....	.....	33	.....
Pasture days	3	.....	.....	.....	.....	.....	8

THE LARGE FARM.

While this farm did not follow a system prevalent throughout Bureau County, it shows the results obtained from short feeding heavy cattle on self-feeders. The largest portion of the cattle fed out on this farm were bought in southern Iowa and northeastern Missouri, placed in the feed lot on self-feeders in the course of a week, and moved on to the Chicago market within 60 to 90 days.

The average feeding period on this farm in the 1916–17 feeding year was 69 days, during which time a steer consumed 1,236 pounds (22 bushels) of corn, in the shape of ground corn and cob meal, 292 pounds of cottonseed meal, 71 pounds of hay, and was allowed eight days' run on pasture while getting a start on self-feeders (Table 1).

TABLE 2.—*Prices of feeds consumed by a steer during fattening period.*

Feed.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.	Large farm, 1916–17
Shelled corn	$0.41	$0.57	$0.63	$0.55	$0.78	$0.59	$0.80
Oats	.28	.....	.30	.....	.40	.33	.....
Cottonseed meal	28.69	30.42	26.26	.....	40.00	31.36	34.55
Molasses feed	.....	22.90	29.40	22.90	.....	25.07	.....
Timothy and clover hay	10.00	8.46	11.87	5.00	9.12	8.89	11.52
Soy beans	10.00	.....	5.91	.....	.....	7.96	.....
Cowpeas	7.50	.....	.....	.....	.....	7.50	.....
Silage	3.24	.....	3.25	.....	.....	3.25	.....
Straw (bedding)	3.00	3.00	1.71	1.50	1.50	2.14	.....
Stover	2.69	2.50	1.50	.....	.....	2.23	.....
Fodder corn	11.13	.....	.....	.....	.....	11.13	.....
Stalks (standing)	.....	.47	.....	.....	.....	.47	.....
Pasture days	.03	.....	.....	.....	.....	.....	.03

GAIN WHILE ON FEED.

The weights of the animals when put into the feed lot, as shown in Table 3, would indicate that in 1912-13 and in 1913-14 the greater number of the steers were short 2-year-olds, and in 1914–15 probably long 2-year-olds. The steers fed in 1912–13 were held on feed longer than is customary with 2-year-olds in Hancock County. The loss realized on feeding in this county in 1914-15 can not be attributed to poor gains, for, as Table 3 shows, the daily gains made this year on these farms compare very favorably with gains during the other years.

TABLE 3.—*Weights and gains of steers.*[1]

Years.	Purchase weight.	Sales weight.	Total gain.	Days on feed.	Gain per head per day.
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*
1912–13	956	1,274	318	204	1.56
1913–14	925	1,221	296	172	1.72
1914–15	1,148	1,327	179	105	1.70
1915–16	1,088	1,295	207	158	1.31
1916–17	1,017	1,212	195	114	1.71
Five-year average	1,027	1,266	239	151	1.60
Large farm	1,188	1,312	124	69	1.80

[1] Weights of the animals in and out of the feed yard are here shown in full numbers; fractions of a pound when less than one-half pound have been dropped, and those larger than one-half pound have been called a full pound. The weights of animals and gains used to obtain the tables in this report expressing costs were the absolute average weights, carried out to at least two decimal places.

SUMMARY OF COSTS.

The factors of cost in finishing a 2-year-old steer, as presented in Table 4, show that the cost of the steer laid down in the feed yard and the feed consumed constitute the major part of the gross cost. Over the five years the average price paid for a feeder steer in Hancock County was $71.69, while the feed consumed by that steer cost $40.60 and the total of all the other costs amounted to $10.17.

The average gross cost per steer appearing on the market as a finished animal was $122.46, but the by-products of the feeding operations were valued at $10.79, leaving the net cost of the steer at market $111.67. These same steers sold at an average per head price of $115.21, making a profit of $3.54.

The animals put into the lots in 1914–15 were heavier than usual, resulting in a shorter feeding period, and a lower feed and labor charge, but still the enterprise, on the average, was unsuccessful. Disregarding the steers of the feeding year 1914–15, the cost of the steer laid down has advanced from $56.89 in 1912–13 to $71.60 in 1916–17.

As many of the steers on the large farm for the year 1916–17 were 3-year-olds and large animals, their cost laid down was high—$95.89. They consumed $24.76 worth of feed, and the total of all other costs was $6.05. The average gross cost on this farm was $126.70. The pork and manure credits amounted to $1.44, making the net cost $125.26. These short-fed steers brought $132.12 per head on the market, and netted in the 1916–17 feeding year $6.86.

TABLE 4.—*Average annual cost and profits in finishing a 2-year-old steer in Illinois, 1912–1917.*[1]

Items.	1912–13.	1913–14.	1914–15.	1915–16.	1916–17.	Five-year average.	Large farm.
Cost laid down	$56.89	$66.21	$86.44	$77.33	$71.60	$71.69	$95.89
Feed cost	42.00	35.78	32.43	42.49	50.31	40.60	24.76
Labor	3.44	2.77	2.18	3.90	2.91	3.04	.77
Equipment	.31	.42	.22	.16	.23	.27	.31
Interest	3.11	2.86	2.15	2.25	1.24	2.32	1.59
Risk	.31	.....	.52	1.31	.97	.62	.25
General farm expense	1.48	1.36	1.46	1.62	.87	1.36	.62
Marketing	2.68	1.70	3.09	2.76	2.58	2.56	2.51
Gross cost	110.22	111.10	128.49	131.82	130.71	122.46	126.70
Credits	9.40	10.72	7.27	14.48	12.10	10.79	1.44
Net cost	100.82	100.38	121.22	117.34	118.61	111.67	125.26
Sales price	104.42	102.49	113.03	121.09	135.01	115.21	132.12
Profit	3.60	2.11	.....	3.75	16.40	3.54	6.86
Loss	.....	.....	8.19	.....	.....	.....	.....
Margin	2.24	1.23	.99	2.24	4.10	2.16	2.63
Necessary margin	1.96	1.06	1.61	1.95	2.75	1.87	1.48

[1] The steers fed on the large farm were mostly 3-year-olds.

As shown in Table 2, the price of concentrated feeds has practically doubled since 1912–13, while the price of roughage used was governed by its quality and condition of curing. For instance, the hay fed in 1915 was of very poor quality, while that fed in 1914–15 was cut and cured under very favorable conditions.

In Hancock County the cost of labor per steer was $3.04, the cost of marketing, $2.56, interest, $2.32, and equipment, risk, and general farm expense, $2.25. On the large farm the labor per head cost 77 cents, marketing, $2.51, interest, $1.59, and other costs, $1.18.

General farm expense used here as a charge against live stock is made up of items of expense difficult to place directly against a particular enterprise of the farm, the principal items making up this expense being taxes and insurance, 45 per cent, and miscellaneous labor, 38 per cent, the remaining 17 per cent being made up of minor items. Equipment charges are exceptionally low on the statistical route in Hancock County, the equipment usually being little more than a corn crib, some feed bunks, and a lot large enough for the animals to feed comfortably in.

CREDITS.

The credits (Table 4), which averaged $10.79 during the five years, were for pork produced from the droppings and the value of the manure. These credits were of necessity estimates based upon close observation of the use made by hogs following the steers and the care and utilization of the manure. The pork credit was arrived at by estimating closely the number of pounds of pork recovered behind the steers, this pork being credited to the cattle at what it sold for. In some cases tests were made by running hogs behind the cattle with no other feed than that regained in the cattle droppings, and using this figure as the basis of pork produced per steer. The actual number of loads of manure recovered from behind the steers was obtained as it was hauled out to the fields, and the value of this manure placed at what was considered its fertility value.

The seemingly low credit in the year 1914–15 was due to the neglect of one of the largest feeders to keep enough hogs behind his steers, while the large credit of 1915–16 can be attributed to the fact that all the feeders fed bundle corn that season, with an average of nearly two hogs to each steer for 160 days.

The small credit on the large farm ($1.44) is due to the using of ground feed exclusively over only a 69-day feeding period. The low manure credit here can be attributed to the practice of using no roughage of any nature in the feed lots.

SELLING PRICES AND MARGINS NECESSARY TO COVER COSTS.

The five-year average margin obtained per hundredweight between the steer laid down in the feed yard and as a finished animal was $2.16 in Hancock County, and $2.63 on the large farm. A margin of $1.87 over the five years would have been large enough to enable the Hancock County steers to meet the expense of feeding, and on the large farm $1.48 would have been sufficient.

In allowing a steer full credit, dependent upon the actual use made with hogs following, these Illinois steers made a profit each feeding season except the season of 1914–15, and throughout the five years a profit equal to approximately one-third of the pork and

manure credit allowed them. Allowing the manure credit but no pork credit, the results of the five years feeding on the Hancock County farms show a loss per head of $1.39.

Every hundred pounds gain put on the Hancock County steers, when allowing these steers full credit for pork and manure, increased in value from $13.81 in 1912–13 to $24.11 in 1916–17, or an average five-year cost of $16.73. On the large farm in 1916–17 the cost was $24.29. The cost of putting on a hundred pounds gain, disregarding the credit made possible through pork and manure, increased from $15.01 in 1912–13 to $27.71 in 1916–17, or a five-year average cost of $18.79, and on the large farm $25.01 (Table 5).

TABLE 5.—*Cost of fattening a steer in Illinois, with and without the pork credit.*

Year.	Gain.	Cost of entire gain.		Cost of 100 pounds gain.	
		With pork credit.	Without pork credit.	With pork credit.	Without pork credit.
	Pounds.				
1912–13	318	$43.93	$47.74	$13.81	$15.01
1913–14	296	34.17	38.27	11.54	12.93
1914–15	179	34.78	37.34	19.43	20.86
1915–16	207	40.01	47.13	19.33	22.77
1916–17	195	47.01	54.04	24.11	27.71
Five-year average	239	89.98	44.90	16.73	18.79
Large farm	121	29.89	30.26	24.29	25.01

The finishing of cattle on corn seldom if ever is attempted without hogs to follow and, as Table 4 indicates, had no hogs followed these cattle they would have proven unprofitable every year prior to the 1916–17 feeding season. Owing to the abnormal increase in cattle prices during the time the steers were on feed in this last year, they would have made a profit per head of $9.37, even though no credit for pork were allowed.

TABLE 6.—*The results during five years of feeding 15 lots of 2-year-old steers, without allowing pork credit.*

	1912–13	1913–14	1914–15	1915–16	1916–17	Five year average.	Large farm 1916–17 [a]
Gross cost	$110.22	$111.10	$128.49	$161.82	$180.71	$122.46	$126.70
Manure credit	5.59	6.62	4.71	7.36	5.07	5.87	.55
Net cost	104.63	104.48	123.78	124.46	125.64	116.60	126.15
Sales prices	104.42	102.49	113.03	121.09	135.01	115.21	132.12
Profit					9.37		5.97
Loss	.21	1.99	10.75	8.37		1.39	

[a] The cattle fed on the large farm were mostly 3-year-old steers.

HOURS OF LABOR REQUIRED.

On the 667 head of steers fed in droves, averaging 44 head to the farm, two and one-half hours of man labor and two hours of horse labor per month were expended on a steer. The cost of man labor and horse labor per hour these five years was 18 and 7 cents, respectively.

The use of self-feeders, overhead tracks, and other mechanical labor-saving devices on the large farm made it possible to care for a steer 30 days with the expenditure of only one and one-fourth man-hours and 45 minutes horse labor, with a large share of this labor used to get the steer to and from the railroad yards, which are a mile from the farm. The cost of labor on this farm was a fraction over 20 cents for man labor and 12½ cents for horse labor.

SUMMARY.

For the period 1912–1917 the finishing of cattle gave opportunity for converting farm crops into beef at a small profit dependent upon the use of hogs to regain what was voided by the cattle. The increased cost of feeder cattle and feeds during the latter years has greatly offset the rapid rise in the market price of the finished animal

COST OF FATTENING CATTLE.

CHAPTER III.

FIVE-YEAR RESULTS IN FINISHING CATTLE ON 20 CORN BELT FARMS (1912–1917).

By R. H. Wilcox,
Assistant in Food Supply Investigations, Bureau of Markets.

INTRODUCTION.

Throughout the five feeding seasons 1912–13 to 1916–17, inclusive, the beef-producing industry passed through three successive conditions of trade: A normal period, a period of depression, and a period of rising values. The season 1912–13 was normal, with the feeding year 1914–15 coming at the low point of a three-year depression which made itself felt from 1913–14 into the 1915–16 season, while 1916–17, recovering from the interval of low markets, resulted in a season of rising prices in cattle as well as in feeds.

It was with the purpose of arriving at the cost and profits in the cattle-finishing industry in the Corn Belt throughout these years that this part of the investigation was planned and executed so as to include five years of feeding.[1]

SOURCE OF DATA.

The plan of confining this study to centers of production and to well-defined systems of finishing cattle was determined upon, in a measure, because of the possibility of finding in these centers and under these systems feeders who operated on a large enough scale, or in a manner such that the keeping of accurate records was made possible. Generally speaking, it was found that feeders operating on a scale sufficiently large to make bookkeeping necessary were found located in the important centers of production.

There were other sections of the Corn Belt which would have been visited and studied had there existed accurate books and records of

[1] The writer acknowledges the help rendered by the feeders who opened their records and accounts to him, making the preparation of the data possible, and to the various live-stock commission companies who opened their files so that the accurate weights and marketing costs of the animals could be taken. Mr. L. H. Van Kirk, Assistant in Market Business Practice, Bureau of Markets, assisted in gathering and compiling the data used in this report.

feeding extending over the five-year period. Nevertheless, barring the fact that the farms included in this part of the investigation were larger than the average of the vicinity in which they were located, the system of feeding and results obtained are comparable to those on the surrounding farms.

The data from which the figures in this report were derived were transcribed from records and accounts of cattle feeders covering operations on 20 large farms during five years, during which time 92 droves, totaling 46,445 head were marketed. The cattle on the Missouri farms were yearlings and short 2-year-old steers, those in the other States were 2-year-old steers, with Nebraska droves carrying some threes.

TABLE 1.—*Sources of data.*

State.	Number of farms.	Number of droves.	Total animals fed.	Average number of animals in drove.
Missouri	3	12	4,586	382
Kansas	2	10	1,718	172
Nebraska	15	70	40,141	573
Total	20	92	46,445	501

The material on Missouri feeding was obtained from farms in Carroll and Atchison Counties, in Kansas from feeders in Marshall and Riley Counties, and in Nebraska from feeders operating in Merrick, Richardson, Knox, Seward, Buffalo, Nance, and Polk Counties.

METHOD OF GATHERING DATA.

In order to assemble the material with as little trouble to the feeders as possible, and to have the figures in uniform condition for final compilation, agents of the Department of Agriculture transcribed from the books of the feeders all figures pertaining to the feeding of cattle. Furthermore, together with the proprietor or manager, they took a complete itemized inventory of land and equipment used in carrying on the feeding business on each farm.

The books were usually found to contain every necessary item desired, occasionally lacking the purchase and sale weights of animals. For these items the feeders' books were supplemented with the files of live-stock commission firms at the markets, where duplicate records of weights were secured.

SYSTEMS OF FEEDING AND MANAGEMENT.

MISSOURI.

The feeders in Carroll County fed out yearling and short 2-year-old steers, supplying their droves with yearlings purchased from their neighbors, increasing to capacity by buying 2-year-old steers at

the Kansas City feeder market. The farming and feeding was carried on under a joint tenant system, the tenant and proprietor feeding live stock in partnership. Under an agreement whereby the feeds owned or purchased jointly were fed to cattle purchased jointly, the proprietor furnished necessary permanent feeding equipment, and the tenant supplied the labor, the parties to the agreement shared equally in the profits and losses. The largest number of cattle went on to feed on the Carroll County farms in October, November, and December. Summer purchases were usually made in July, the steers running on pasture while fattening.

The Atchison County operator fed yearling steers, purchased usually at Omaha and Kansas City. As with Carroll County farms, the largest number of cattle went on to feed in October, November, and December, but summer purchases were made and carried on grass while fattening.

In Carroll County the accounts and records were kept by the proprietors, and as their outlay was not very large it did not necessitate the maintenance of an office and a force to keep the accounts. In Atchison County, however, a diversified business being followed and operated upon a large scale, it was necessary to maintain an office force. The one feeder placed a manager on each farm to oversee the care and feeding of the animals, the general policies governing buying and selling, and the kind and quantity of feeds used coming from the general offices.

The average length of the feeding period in Missouri was 137 days, during which time a steer consumed on an average 1,871 pounds (33.5 bushels) of corn, 85 pounds of cotton-seed meal, 38 pounds of molasses feed, 19 pounds of linseed-oil meal, together with 57 pounds of miscellaneous concentrates, principally hominy and gluten feed, 737 pounds of leguminous forage, 815 pounds of silage, and was on pasture 51 days. (See Appendix, Table 4.)

KANSAS.

The bulk of the information in this State was taken in Marshall County, where steers were brought in from Omaha or Kansas City and run two weeks to a month on stalk fields while starting on a ration of corn, alfalfa hay and silage, supplemented with cotton-seed meal. No overhead expense in the form of office labor and equipment was incurred by the feeders in this county. (See fig. 1.)

In Riley County the one feeder visited fed animals of varying ages. Only those lots were included in this investigation that were fed for ordinary market trade. The majority of these animals averaged about two years of age. This feeder made an administration charge against his stock to cover cost of manager and office equipment.

The length of feeding period in Kansas was 147 days, during which time a steer consumed on an average 2,593 pounds (46.3 bushels) of corn, 276 pounds of cotton-seed meal, 80 pounds of miscellaneous concentrates, 1,665 pounds of alfalfa hay, 1,366 pounds of silage, 763 pounds of stalks and stover, and 32 pounds of miscellaneous roughages. (See Appendix, Table 5.)

NEBRASKA.

The general practice of the feeders in Nebraska was to buy feeder cattle at Omaha, with an occasional draft from Denver or directly from the range, carry them a short time on coarse roughage such as stalk fields or old meadows to give them a fill, before putting them into the feed yard upon a ration consisting of corn, a protein concentrate, hay, and occasionally silage. (See fig. 2.) Cattle were uniformly purchased between October and the holidays.

The large cattle companies in this State, some of them operating as many as half a dozen farms, maintained offices requiring the services of managers and bookkeepers. Other feeders, who carried on feeding in conjunction with their elevator business, used the elevator office and force to keep the details of the business in hand.

The average length of feeding period in Nebraska was 142 days, during which time a steer consumed 2,634 pounds (47 bushels) of corn, 173 pounds of cotton-seed meal, 83 pounds of alfalfa meal, 57 pounds of miscellaneous concentrates, 1,201 pounds of hay, about equally divided between alfalfa and prairie hay, 595 pounds of silage, and 147 pounds of miscellaneous roughages. (See Appendix, Table 6.)

CORN YIELDS AND PRICES.

The yearly fluctuations in the prices actually paid out for corn are reflected in the corn yields of the States touched. (Appendix, Table 10.) The 1913 crop fell far below average for the years studied, especially in Kansas, Missouri, and Nebraska. In this year the Kansas crop of corn averaged a fraction over 3 bushels an acre, with Missouri and Nebraska harvesting half a crop. Again, in 1916 Kansas and Missouri corn suffered, adding to the already advancing price of this feed to the cattlemen in these States who continued in the finishing business.

The apparently low price paid for corn in 1916–17 on the farms studied was due to the policy followed by these feeders of contracting ahead for their necessary feed. Some of the corn that was bought in at less than a dollar was fed out at a time when corn was selling at the nearest elevators for more than a dollar and a half a bushel.

FIG. 1.—Cattle on full feed on the Marshall County (Kans.) farm.

FIG. 2.—Feed yard typical of many of those of the large cattle-feeding companies in Nebraska. Little equipment is used beyond the necessary land, feed bunks, hay racks, and storage sheds.

FEED REQUIRED TO PRODUCE A HUNDRED POUNDS GAIN.

As shown in Table 2, it requires 2,531 pounds of grain, 267 pounds of commercial concentrates, 1,650 pounds of dry roughage, and 833 pounds of silage to place 254 pounds of beef on the steers fed out in Illinois,[1] Missouri, Kansas, and Nebraska during the five years. In addition, the Missouri steers were on grass an average of 51 days. Ninety-nine per cent of the grain was corn. The dry roughage was hay, corn fodder and corn stalks, with cotton-seed meal, linseed-oil meal, and alfalfa meal the principal commercial concentrates.

TABLE 2.—*Total pounds of each class of feeds consumed by a steer and the amount of each required to produce 100 pounds of gain.*

Locality.	Gained per head.	Total quantity eaten per head.					Quantity required per 100 pounds of grain.			
		Grain.	Commercial concentrates.	Roughage.	Silage.	Pasture.	Grain.	Commercial concentrates.	Roughage.	Silage.
	Lbs.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Days.*	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*
Illinois	239	2,966	241	2,056	554	.....	1,241	101	860	232
Missouri	205	1,889	200	737	815	51	921	98	360	398
Kansas	321	2,616	333	2,460	1,366	.....	815	104	766	426
Nebraska	250	2,654	293	1,348	595	.....	1,062	117	539	238
Average	254	2,531	267	1,650	833	.....	1,010	105	632	324

It required 18 bushels of corn, together with 105 pounds of commercial concentrates, 632 pounds of dry roughage, and 324 pounds of silage, to put 100 pounds of beef on the average steer.

METHODS OF ARRIVING AT COSTS.

Nearly every farm visited, with the exception of the farms in Missouri, closed its financial year during a month when no cattle were on feed. This date varied somewhat, but in every case came somewhere between June 1 and October 1. By doing this, the inventory usually did not carry any feeding animals, all being purchased and sold within the fiscal year.

The Missouri farms, however, closed their books and took inventory of cattle on feed January 1. In almost every case their yards on this date carried steers that had been on feed varying lengths of time, and for which it was necessary to assume a weight and value. The average weights of these cattle at inventory time was assumed to be their purchase weight, which the books carried, plus the gain made since going on feed. In addition, at this time, the farmer and his feeder looked the cattle over closely and struck a fair average between estimated gains and the way the cattle looked on foot. A

[1] See Cost of Fattening Cattle, Part II: A Five-Year Study of the Cost of Finishing Cattle in Illinois.

price was placed on the steers, approximating as nearly as could be estimated the market quotations for animals of similar quality and condition on that date.

A year's business, as taken, included the costs expended on all cattle fed. These figures were compiled and reduced to the average cost of each steer sold. In this study the cost of the animal laid down at the farm was used as the initial value. No detailed study of the incost of the feeder was made, owing to the inadequate data and the widely varying methods of purchasing feeders. The cost of the feeder delivered at the farm is made up of the price paid for the feeder and all necessary expenses in getting this animal to the farm. The sales price, however, is the price received for the steer at market. The cost of marketing, since it is paid by the farmer, is considered a necessary cost of finishing. The margin is considered to be the difference between the cost laid down and the gross sale price received at market for the finished animal. The necessary margin is the difference between the cost laid down and the net cost of the steer after being fattened and delivered to market, that is, the margin necessary to have simply met the costs while in the feeder's hands.

As the books examined in this inquiry were confined entirely to classification of income and expenditure, with no attempt at cost accounting, the cash cost of all feed purchased for the purpose of feeding, if actually consumed within the fiscal year, was used as the feed charge, regardless of what its market price might have been the day or month it was consumed.

As a matter of fact, the contracting for feed months before the feed lots were filled was considered by the majority of feeders visited to be one of the requisites of the feeding business. Thus, if it was possible to save on feed cost by contracting ahead of production the steer was allowed the saving, and the feed charged to it at actual contract and purchase price.

SUMMARY OF COSTS.

The various costs in fattening a steer for market, as well as the credit that may be obtained, are shown for the three States and for Illinois in Table 3.

TABLE 8.—*Average five-year cost and profits in finishing a steer in four Corn-Belt States,*[1] *1912 through 1917.*

Items.	Illinois.	Missouri.	Kansas.	Nebraska.	Average.
Cost laid down	$71.69	$56.39	$72.04	$68.19	$67.08
Feed	40.60	28.15	42.56	38.04	37.34
Labor	3.04	1.91	1.60	2.04	2.15
Equipment	.27	.84	2.90	2.24	1.56
Interest	2.32	1.60	2.93	2.01	2.21
Risk	.62	.16	.13	.25	.29
General farm expense	[a] 1.36	.70	1.17	3.94	1.79
Veterinary		.04	.01	.04	
Insurance		.10	.65	.10	
Taxes		.12	.25	1.11	
Incidental		.33	.06	.80	
Administration		.11	.20	2.39	
Marketing	2.56	3.39	2.83	3.14	2.98
Gross cost	122.46	93.14	126.16	119.85	115.40
Credits	10.79	4.26	4.93	7.50	6.37
Net cost	111.67	88.88	121.23	112.35	108.53
Sales price	115.21	83.97	127.81	110.52	109.38
Profit	3.54		6.58		.85
Loss		4.91		1.83	
Margin	2.16	1.32	2.50	2.02	2.00
Necessary margin	1.87	1.79	2.01	2.17	1.96

[1] Unless otherwise stated, the costs discussed and included in the tables are for one steer during the entire time on feed.

[a] The Illinois figures (see Cost of Fattening Cattle, Part II) which are included in this table for comparison with the other States were not itemized in the expenses included in "General farm expense." For the other three States veterinary charges, insurance, taxes, incidental expenses, and administration charges are combined to make a general farm expense comparable to that of Illinois.

MISSOURI.

It was impossible in summarizing the Missouri figures to carry all the farms through for the five years. This fact is reflected especially in the cost of the feeder steers laid down on the farm, figures for 1916 being obtainable from Carroll County only. (See Appendix, Table 11.)

During the first four years the cost of the feeder animals increased from an average of $51.37 to $61.50. In 1916 the Carroll County feeders managed to lay in their cattle for $49.82 a head. The average of the five years, considering the year 1916, was $56.39. Although the cost of the steer varied widely from year to year, the cost of the feed fed to each steer throughout the feeding period increased quite steadily from $20.41 in 1912 to $37.63 in 1916, or an average cost over the five years of $28.15. The average marketing cost was $3.39, labor $1.91, interest $1.60, and all other costs $1.70, making the gross cost of the steer $93.14. The cost of marketing the Missouri steers included in this report is higher than the majority of feeders in this State would bear, due to the practice of the feeders whose books were examined of shipping a large number of their finished steers to Chicago rather than to nearer markets.

The feeding year 1914 was an exceptionally unprofitable one for the Missouri feeder, his steers costing $65.34, which was about $12 more than in the previous years, and his feeds about $10 a head more

than he had been accustomed to paying, although he did not keep them on feed as long as usual. But for the fact that the steers fed in 1916 were purchased from farms in the immediate vicinity, and that it was possible to buy them for $10 less per head than animals of similar quality were selling for at the feeder markets, there would have been no profit this year in feeding. During the four years, 1912 through 1915, which were so unprofitable, the finished steer was unable to recover at market one-half of the margin necessary to pay for his feed and handling.

The credits for pork produced by hogs following, and the manure recovered, averaged $4.26 per steer, making the net cost of the animal at market $88.88. The average gross selling price received for a steer during the five years was $83.97, resulting in a loss of $4.91 per head. (See Table 3.)

KANSAS.

The price of the steer in Kansas fluctuated considerably from year to year (see Appendix, Table 12), resulting in a five-year average cost of $72.04. With the exception of the 1915–16 season, when only $35.66 was expended, the feed cost increased from $32.97 in 1912–13 to $56.37 in 1916–17, with a five-year average of $42.56. Interest charge was $2.93, equipment $2.90, marketing $2.83, labor $1.60, and all other costs $1.30, making a total gross cost of $126.16.

The hogs and manure brought a credit of $4.93 to the average steer, making the net cost at market $121.23. This average steer brought $127.81, thus making an average profit for the five years of $6.58. (See Table 3.)

Three out of the five years on the Kansas farms studied proved to be sufficiently remunerative to wipe out the losses sustained in the 1913–14 and 1914–15 seasons. It is very doubtful if the average run of feeders in this State will show the same profit for the five years. Considering that the feeders included in the Kansas report are somewhat advantageously situated, the losses sustained in 1913–14 and 1914–15 carry added weight. This loss can be attributed to the poor finished-cattle market and to the decided crop failures of 1913 and 1914.

NEBRASKA.

Feeder cattle were put into the lot in Nebraska during the five years at a very uniform cost, the average figure being $68.19 per head. Feed costs show an advance from $29.71 in 1912–13 to $46.44 in 1916–17, an average of $38.04 throughout the five years. (Appendix, Table 13.) The high cost of feed in 1914–15 can be attributed to the general corn failures in 1913 and 1914, and to the fact that cattle were held longer that year in an endeavor to find a remunerative market. The fact that cattle in 1914–15 were held on feed 173 days, while the

average over the whole five years was 142, is also reflected in other items of cost.

Equipment charges over the five years amounted to $2.24, labor $2.04, interest $2.01, marketing $3.14, administration $2.39, taxes $1.11, and other charges 69 cents. Particular mention should be made of the 1916–17 tax, which reached $3.60 a head, owing to the war-time excess profit tax; in the other years the major portion of the tax, which ranged from 37 to 61 cents, was personal property tax, the amount of which was governed largely by the value of cattle on hand at assessment time.

The profit to the Nebraska feeders for 1912–13, as shown in Appendix, Table 13, was so small that a slight variation in the estimated pork and manure credits would have wiped it out entirely. The 1913–14 and 1914–15 seasons were unprofitable for the Nebraska feeders. The loss in these two years, totaling over $19 on each animal fed, put many feeders out of business. The feeders who were able to obtain capital enough to continue feeding had not made good their loss at the end of the 1916–17 season, although the seasons of 1915–16 and 1916–17 were profitable.

METHOD FOR ARRIVING AT CREDITS.

The unused portion of the feeds consumed by cattle, if recovered and placed upon the land or converted into pork, is a legitimate credit to the steer. Since much of the voided grain can still be used to produce a marketable product, the general practice of putting hogs to work behind cattle has come to be considered one of the important adjuncts of cattle feeding. The amount of grain that passed through the steer unused depended upon the shape in which grains were fed, whether whole or ground, and upon the age of the animal. When cattle were fed ground grain by hand in a well-balanced ration, it was found that hogs following no more than held their weight. Where this practice of feeding was carried on no hog credit was allowed.

Under the more prevalent system of using whole corn, either shelled, chopped, or on the ear, the pork credit often amounted to enough to make the difference between a profit and a loss.

In working with feeders well established in the business, who had made years of study in the requirements of cattle and hogs under their type of feeding, it was usually found that tests were made off and on to learn just how much pork was being made by the number of hogs behind their steers.

These hog gains were usually carried on their books as a credit to cattle, and where they were not the hog gain was obtained by carefully going over the hog accounts for the years covered, from which the number of hogs following cattle was worked out. Particular care

was taken in all cases to study each farm and its method of carrying hogs, comparing the hog gains credited to cattle with carefully weighed gains made under similar feeding at experiment stations. This pork gain made from grain recovered in manure was credited to cattle at what it brought on the market. Margin on hogs was not considered a proper credit to cattle.

The credits for manure varied widely, according to use made of it and to whether it accumulated in such amounts as to be a liability rather than an asset. Where, as in a few cases, farms were not owned in conjunction with the feeding business, extra labor was necessary to cart away the manure in order to have the lots in condition for the next season. Where use was made of the manure by spreading it out on the farm a careful estimate was obtained from the feeder as to number of loads and their value, and this estimate supplemented with careful observations as to size of yards and general facilities for making the best use of the manure before being put as a credit.

SELLING PRICES AND MARGINS NECESSARY TO COVER COSTS.

The five-year average margin obtained per hundredweight between the cost of the steer laid down in the feed lot and its value when finished was $2.16 in Illinois[1] (Hancock County), $1.32 in Missouri, $2.50 in Kansas, and $2.02 in Nebraska, or over the four States in the five years, $2.

To have barely met the cost of fattening the average steer and placing it on the market during the five years, it would have been necessary for the feeder in Illinois to receive a margin of $1.87, in Missouri $1.79, in Kansas $2.01, in Nebraska $2.17, and for the four States taken together, $1.96.

When allowing the steers full credit for pork and manure in Illinois, the cost of 100 pounds gain increased from $13.81 in 1912–13 to $24.11 in 1916–17, or $16.73 for the five years, and for the Missouri steers from $11.65 in 1912 to $17.04 in 1917 or for the five years taken together $15.88 (Appendix, Table 17). One hundred pounds gain in Kansas, allowing all credits, increased from $10.98 in 1912–13 to $20.99 in 1916–17, a five-year average of $15.57 (Appendix, Table 18). Nebraska feeders put on a hundred pounds' gain under like conditions for $15.03 in 1912–13, increasing to a cost of $19.44 in 1916–17, with a five-year average of $17.60 (Appendix, Table 19).

Had the pork credit been left out entirely and the cattle been given credit for manure only, the cost of a hundredweight gain in Illinois would have advanced from $15.01 in 1912–13 to $27.71 in 1916–17, and averaged $18.79 over the five years; in Missouri from $13.20 in 1912 to $19.61 in 1917, a five-year average of $17.78; in Kansas from

[1] See Cost of Fattening Cattle, Part II. A Five-Year Study of the Cost of Finishing Cattle in Illinois.

$12.01 in 1912–13 to $22.79 in 1916–17, or an average of $17.08; in Nebraska, a hundred pounds put on in 1912–13, allowing no pork credit, cost $17.05, increasing to $24.19 in 1916–17, an average over the five years of $20.59.

As shown in Table 4 in the four States—Illinois, Missouri, Kansas, and Nebraska—from 1912 through 1917, it cost the feeder $16.47 to place a hundred pounds gain on a steer, allowing him all credit due this steer, and $18.60 when the steer was not allowed a pork credit.

TABLE 4.—*The five-year average cost of producing cattle gains on Corn-Belt farms, 1912–13 through 1916–17.*[1]

States.	Total gain.	Cost of entire gain.		Cost of 100 pounds gain.	
		With pork.	Without pork.	With pork.	Without pork.
	Pounds.				
Illinois[2]	239	$39.98	$44.90	$16.73	$18.79
Missouri	205	32.49	36.44	15.88	17.78
Kansas	321	49.20	54.01	15.57	17.08
Nebraska	250	44.16	51.67	17.60	20.59
Average	254	41.46	46.76	16.47	18.60

[1] See Appendix, Tables 17, 18, and 19.
[2] Cost of Fattening Cattle, Part II: A Five-Year Study of the Cost of Finishing Cattle in Illinois.

TABLE 5.—*The results during five years of feeding, without allowing pork credit.*

States.	Illinois.	Missouri.	Kansas.	Nebraska.	Average.
Gross cost	$122.46	$93.14	$126.16	$119.85	$115.40
Manure credit	5.87	.30	.13	.00	1.57
Net cost	116.60	92.84	126.03	119.85	113.83
Sales price	115.21	83.97	127.81	110.52	109.38
Profit	.....	.....	1.78	.....	.....
Loss	1.39	8.87	.....	9.33	4.45

By combining hogs and cattle as a feeding enterprise the Illinois feeders realized a profit of $3.54 per steer, and Kansas feeders $6.58, while the Missouri and Nebraska feeders lost $4.91 and $1.83,, respectively. Yet, combining the four States over the whole period, the feeders were able to realize a profit of 85 cents a head.

By taking the hog gain away from the steer and allowing a credit for manure only, as has been done in Table 5, the Kansas steer was the only one able to pay for its feed and care, making a profit of $1.78. Under similar conditions Illinois showed a loss of $1.39 per steer, Missouri $8.87, and Nebraska $9.33. The average loss of $5.33 a steer without hogs following clearly shows than an attempt at feeding without hogs would have been decidedly unprofitable.

SUMMARY.

To finish a steer in Missouri, on feed 137 days, 51 of which were spent on pasture, required 33.5 bushels of corn, 200 pounds of other concentrates, and 737 pounds of roughage; in Kansas (147-day feeding period), 46.3 bushels of corn, 333 pounds of other concentrates, 2,460 pounds of dry roughage, and 1,366 pounds of silage; in Nebraska (142-day feeding period), 47 bushels of corn, 293 pounds of other concentrates, 1,348 pounds of dry roughage, and 595 pounds of silage. In the four States—Illinois, Missouri, Kansas, and Nebraska—for 1912–1917, each 100 pounds of gain required 1,010 pounds of grain, principally corn, 105 pounds of commercial concentrates, 632 pounds of dry roughage, and 324 pounds of silage.

The average price of the feeder in the four States, 1912–1917, was $67.08. Feed consumed cost $37.34, labor $2.15, equipment charge $1.56, interest $2.21, risk 29 cents; veterinary, insurance, taxes, incidental and administration costs totaled $1.79, to market the steer cost $2.98, making the gross cost at market $115.40, and the net cost $108.53, after giving a credit of $6.87 for pork and manure produced. The steer sold for $109.38, leaving the feeder an average profit of 85 cents. Had no pork credit been allowed the steers they would have involved a loss of $4.45 per head.

The five-year average cost, 1912–1917, to put the entire gain on the steer in the four States, was $41.46 when allowing pork credit, and $46.76 when not allowing pork credit. A hundred pounds gain, allowing the pork credit, cost $16.47; without pork credit, $18.60.

APPENDIX.

TABLE 1.—*Weights and gains of Missouri steers.*

Year.	Purchase weight.	Sale weight.	Total gain.	Days on feed.	Gain per head per day.
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*
1912	774	984	210	132	1.59
1913	805	998	193	126	1.53
1914	817	1,012	195	132	1.48
1915	884	1,071	187	135	1.39
1916	641	881	240	162	1.48
Average	785	989	205	137	1.49

TABLE 2.—*Weights and gains of Kansas steers.*

Year.	Purchase weight.	Sale weight.	Total gain.	Days on feed.	Gain per head per day.
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*
1912–13	1,076	1,433	357	106	3.17
1913–14	1,048	1,333	285	144	1.93
1914–15	912	1,269	357	187	1.91
1915–16	1,077	1,384	307	164	1.87
1916–17	944	1,241	297	133	2.23
Average	1,011	1,332	321	147	2.18

TABLE 3.—*Weights and gains of Nebraska steers.*

Year.	Purchase weight.	Sale weight.	Total gain.	Days on feed.	Gain per head per day.
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*
1912–13	1,054	1,297	243	130	1.87
1913–14	1,023	1,245	222	114	1.95
1914–15	1,002	1,263	261	173	1.51
1915–16	957	1,219	262	160	1.64
1916–17	911	1,174	263	134	1.96
Average	989	1,239	250	142	1.76

TABLE 4.—*Average amounts of feeds consumed annually per head by cattle in Missouri, 1912 through 1917.*

Feeds.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Shelled corn	1,682	1,858	2,026	1,958	1,829	1,871
Oats			14			3
Linseed-oil meal	45	8	34	8		19
Cotton-seed meal	49	92	78	51	155	85
Burnt wheat	77			90		15
Molasses feed	64		25		102	38
Bran	8					2
Corn hearts	13	8				4
Hominy					105	21
Gluten					59	12
Alfalfa	468	505	320	426	664	477
Clover hay	266	102	232	204	496	260
Silage	1,063	1,456	847	709		815
Salt	2	2		3	3	3
Pasture days	59	57	63	62	24	51

TABLE 5.—*Average amounts of feeds consumed annually per head by steers in Kansas, 1912–13 through 1916–17.*

Feeds.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Shelled corn	2,569	3,646	2,329	2,129	2,202	2,593
Oats	.....	32	33	.....	51	23
Miscellaneous concentrates	.....	14	21	.....	33	24
Linseed-oil meal	57	7	25	13	62	33
Cottonseed meal	337	416	524	78	32	276
Alfalfa	1,540	1,412	1,309	2,055	2,003	1,665
Prairie hay	.....	.....	13	.....	92	21
Straw	.....	.....	18	.....	4	4
Stover	1,170	.....	.....	.....	15	237
Stalks	1,415	.....	.....	155	1,060	526
Miscellaneous roughage	33	.....	.....	.....	.....	7
Silage	.....	.....	2,723	1,659	2,446	1,366

TABLE 6.—*Average amounts of feeds consumed annually per head by steers in Nebraska, 1912–13 through 1916–17.*

Feeds.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Shelled corn	2,603	2,249	3,084	2,763	2,472	2,634
Oats	10	13	15	17	39	20
Linseed-oil meal	6	1	11	10	24	10
Cottonseed meal	139	165	317	162	84	173
Bran	49	.....	.....	55	2	21
Alfalfa feed	136	65	80	94	40	83
Miscellaneous concentrates	.....	.....	.....	29	.....	6
Alfalfa	623	573	594	740	774	662
Prairie hay	411	464	719	545	556	539
Feterita	.....	.....	.....	21	.....	4
Straw	68	3	.....	35	24	26
Fodder	3	.....	.....	7	.....	2
Stalks	262	.....	.....	150	136	110
Silage	700	449	567	724	533	595
Salt	3	2	5	6	5	4
Cane	.....	.....	.....	21	2	5

TABLE 7.—*Average prices of feeds consumed by Missouri steers, 1912 through 1917.*

Feeds.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Shelled corn.....bushel	$0.38	$0.48	$0.63	$0.64	$0.80	$0.59
Oats.....bushel	.....	.....	.42	.....	.....	.42
Linseed-oil meal.....ton	32.13	30.00	23.20	38.14	.....	30.87
Cottonseed meal.....do	27.34	26.88	27.71	36.88	35.76	31.41
Molasses feed.....do	28.90	.....	20.83	27.31	35.84	28.22
Bran.....do	16.80	.....	.....	.....	.....	16.80
Corn hearts.....do	27.00	25.20	.....	.....	.....	26.10
Hominy.....do	.....	.....	.....	.....	50.72	50.72
Gluten.....do	.....	.....	.....	.....	43.05	43.05
Alfalfa.....do	8.00	9.00	10.00	8.00	17.84	10.47
Clover hay.....do	7.00	7.00	5.80	7.21	10.71	7.54
Silage.....do	3.00	4.00	5.00	5.00	.....	4.25
Pasture (per day)	.025	.025	.025	.025	.025	.025

TABLE 8.—*Average prices of feeds consumed by Kansas steers, 1912–13 through 1916–17.*

Feeds.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Shelled corn.....bushel..	$0.40	$0.77	$0.72	$0.68	$0.74	$0.66
Oats.....bushel..	.....	.44	.50	.....	.60	.51
Miscellaneous concentrates.....ton..	.....	40.00	20.00	.....	36.47	32.16
Linseed-oil meal.....do..	30.00	32.00	33.00	39.67	40.98	35.13
Cottonseed meal.....do..	24.00	27.52	24.64	33.00	39.08	29.65
Alfalfa.....do..	10.14	12.50	9.00	8.00	10.46	10.02
Prairie hay.....do..	.....	.....	10.00	.....	15.50	12.75
Straw.....do..	.....	.....	5.21	.....	5.52	5.58
Stover.....do..	2.00	.....	.....	.....	5.00	3.50
Stalks.....do..	1.00	.....	.....	.67	.67	.78
Miscellaneous roughage.....do..	5.00	.....	.....	.....	.....	5.00
Silage.....do..	.....	.....	3.00	5.00	3.51	3.84

TABLE 9.—*Average prices of feeds consumed by Nebraska steers, 1912–13 through 1916–17.*

Feeds.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Shelled corn.....bushel..	$0.46	$0.62	$0.58	$0.56	$0.83	$0.61
Oats.....bushel..	.31	.40	.41	.30	.43	.37
Linseed-oil meal.....ton..	27.34	32.80	34.23	41.69	43.57	35.93
Cottonseed meal.....do..	26.08	30.70	28.38	32.05	40.94	31.63
Bran.....do..	17.29	.....	.....	16.87	32.07	22.08
Miscellaneous concentrates.....do..	.....	.....	.....	13.77	.....	13.77
Alfalfa feed.....do..	17.33	16.08	18.42	18.21	22.41	18.49
Alfalfa.....do..	7.00	7.74	6.85	7.69	8.51	7.56
Prairie hay.....do..	6.04	6.50	5.05	5.95	7.38	6.18
Silage.....do..	3.14	3.67	3.75	4.23	4.51	3.86
Feterita.....do..	.....	.....	.....	4.00	.....	4.00
Straw.....do..	1.56	2.50	.....	2.54	2.89	2.37
Stover.....do..	.....	.....	.....	.....	.....	.....
Fodder.....do..	5.00	.....	.....	2.65	.....	3.82
Stalks.....do..	.61	.....	.....	.58	1.02	.74
Cane.....do..	.....	.....	.....	4.67	5.00	4.84

TABLE 10.—*Corn yield per acre.*[1]

Locality.	1911	1912	1913	1914	1915	1916
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
Illinois	33.0	40.0	27.0	29.0	36.0	29.5
Missouri	26.0	32.0	17.5	22.0	29.5	19.5
Nebraska	21.0	24.0	15.0	24.5	30.0	26.0
Kansas	14.5	23.0	3.2	18.5	31.0	10.0
Iowa	31.0	43.0	34.0	38.0	30.0	36.5
Indiana	36.0	40.3	36.0	33.0	38.0	34.0
Ohio	38.6	42.8	37.5	39.1	41.5	31.5

[1] 1917 Yearbook, p. 609.

TABLE 11.—*Average annual cost and profits in finishing a steer in Missouri, 1912 through 1916.*

Items.	1912	1913	1914	1915	1916	Five-year average.
Cost laid down	$51.37	$53.93	$65.34	$61.50	$49.82	$56.39
Feed cost	20.41	21.72	30.47	30.53	37.63	28.15
Labor	1.53	1.65	1.82	1.82	2.75	1.91
Equipment	.60	.69	.85	.89	1.19	.84
Interest	1.34	1.35	1.78	1.70	1.83	1.60
Risk	.26	.33	.05	.10	.08	.16
Veterinary	.01	.02	.04	.01	.11	.04
Insurance	.....	.01	.09	.14	.24	.10
Taxes	.08	.15	.15	.13	.07	.12
Incidental	.39	.37	.31	.37	.20	.33
Administration	.08	.12	.19	.16	.....	.11
Marketing	3.31	3.55	3.40	3.43	3.25	3.39
Gross cost	79.38	83.89	104.49	100.78	97.17	93.14
Credits	3.55	3.86	3.33	4.11	6.45	4.26
Net cost	75.83	80.03	101.16	96.67	90.72	88.88
Sale price	72.64	75.86	85.61	91.72	94.02	83.97
Profit	.....	.....	.....	.....	3.30	.....
Loss	3.19	4.17	15.55	4.95	.....	4.91
Margin	.74	.90	.46	1.60	2.89	1.32
Necessary margin	1.07	1.32	1.99	2.06	2.52	1.79

TABLE 12.—*Average annual cost and profits in finishing a steer in Kansas, 1912–13 season through 1916–17.*

Items.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Cost laid down	$68.28	$75.30	$67.00	$79.57	$70.04	$72.04
Feed cost	32.97	42.37	45.45	35.66	56.37	42.56
Labor	1.18	1.52	2.01	1.80	1.49	1.60
Equipment	2.78	3.27	4.19	2.04	2.24	2.90
Interest	1.98	3.06	3.65	3.11	2.85	2.93
Risk	.23	.26	.....	.17	.....	.13
Veterinary	.01	.01	.02	.01	.01	.01
Insurance	.76	.60	.65	.66	.57	.65
Taxes	.18	.41	.24	.....	.40	.25
Incidental	.....	.08	.06	.05	.10	.06
Administration	.....	.28	.21	.18	.35	.20
Marketing	2.80	2.39	2.78	2.67	3.50	2.83
Gross cost	111.17	129.55	126.26	125.92	137.92	126.16
Credits	3.67	4.84	6.25	4.35	5.54	4.93
Net cost	107.50	124.71	120.01	121.57	132.38	121.28
Sale price	119.44	115.82	114.45	135.02	154.32	127.81
Profit	11.94	.....	.....	13.45	21.94	6.58
Loss	.....	8.89	5.56	.....	.....	.....
Margin	1.98	1.50	1.67	2.36	5.01	2.50
Necessary margin	1.15	2.17	2.10	1.39	3.24	2.01

TABLE 13.—*Average annual costs and profits in finishing a steer in Nebraska, 1912–13 through 1916–17.*

Items.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Cost laid down	$67.97	$70.44	$67.86	$63.86	$70.83	$68.19
Feed cost	29.71	33.55	43.26	37.24	46.44	38.04
Labor	1.70	1.99	2.20	2.13	2.17	2.04
Equipment	1.94	2.27	2.39	2.29	2.30	2.24
Interest	1.80	1.49	2.53	2.11	2.11	2.01
Risk	.19	.54	.28	.08	.18	.25
Veterinary	.03	.02	.06	.05	.07	.04
Insurance	.09	.10	.08	.09	.14	.10
Taxes	.37	.47	.49	.61	3.60	1.11
Incidental	.22	.26	.35	.35	.34	.30
Administration	1.96	1.89	1.89	2.91	3.29	2.39
Marketing	3.41	2.68	3.17	3.48	2.95	3.14
Gross cost	109.39	115.70	124.56	115.20	134.42	119.85
Credits	4.90	6.74	7.10	6.31	12.47	7.59
Net cost	104.49	108.96	117.46	108.89	121.95	112.35
Sale price	104.52	102.80	104.33	113.72	127.21	110.52
Profit	.03	.....	.....	4.83	5.26	.....
Loss	.....	6.16	13.13	.....	.....	1.83
Margin	1.61	1.37	1.40	2.66	3.06	2.02
Necessary margin	1.61	1.87	2.59	2.26	2.62	2.17

TABLE 14.—*The results during five years of feeding in Missouri without allowing pork credit.*

Items.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Gross cost	$79.38	$83.89	$104.49	$100.78	$97.17	$93.14
Manure credit	.29	.36	.27	.30	.27	.30
Net cost	79.09	83.53	104.22	100.48	96.90	92.84
Sale price	72.64	75.86	85.61	91.72	94.02	83.97
Loss	6.45	7.67	18.61	8.76	2.88	8.87

TABLE 15.—*The results during five years of feeding in Kansas, without allowing pork credit.*

Items.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Gross cost	$111.17	$129.55	$126.26	$125.92	$137.92	$126.16
Manure credit	.....	.17	.12	.10	.28	.13
Net cost	111.17	129.38	126.14	125.82	137.64	126.03
Sale price	*119.44*	*115.82*	*114.45*	*135.02*	*154.32*	*127.81*
Profit	8.27	.....	.....	9.20	16.68	1.78
Loss	.....	13.56	11.69	.....	.....	.....

TABLE 16.—*The results during five years of feeding in Nebraska, without allowing pork credit.*

Items.	1912–13	1913–14	1914–15	1915–16	1916–17	Five-year average.
Net cost	$109.39	$115.70	$124.56	$115.20	$134.42	$119.85
Sale price	*104.52*	*102.80*	*104.33*	*113.72*	*127.21*	*110.52*
Loss	4.87	12.90	20.23	1.48	7.21	9.33

TABLE 17.—*Cost of fattening a steer in Missouri, with and without considering the pork credit, 1912 through 1917.*

Year.	Total gain.	Cost of entire gain.		Cost of 100 pounds gain.	
		With pork credit.	Without pork credit.	With pork credit.	Without pork credit.
	Pounds.				
1912	210	$24.46	$27.72	$11.65	$13.20
1913	193	26.10	29.60	13.52	15.34
1914	195	35.82	38.86	18.37	19.93
1915	187	35.17	38.98	18.81	20.84
1916	240	40.90	47.06	17.04	19.61
5-year average	205	32.49	36.44	15.88	17.78

TABLE 18.—*Cost of fattening a steer in Kansas, with and without considering the pork credit, 1912–13 through 1916–17.*

Year.	Total gain.	Cost of entire gain.		Cost of 100 pounds gain.	
		With pork credit.	Without pork credit.	With pork credit.	Without pork credit.
	Pounds.				
1912–13	357	$39.22	$42.89	$10.98	$12.01
1913–14	285	49.41	54.09	17.34	18.98
1914–15	357	53.01	59.14	14.85	16.56
1915–16	307	42.00	46.25	13.68	15.06
1916–17	297	62.34	67.68	20.99	22.79
5-year average	321	49.20	54.01	15.57	17.08

TABLE 19.—*Cost of fattening a steer in Nebraska, with and without considering the pork credit, 1912–13 through 1916–17.*

Year.	Total gain.	Cost of entire gain.		Cost of 100 pounds gain.	
		With pork credit.	Without pork credit.	With pork credit.	Without pork credit.
	Pounds.				
1912–13	243	$36.52	$41.42	$15.03	$17.05
1913–14	222	38.51	45.26	17.35	20.39
1914–15	261	49.60	56.70	19.00	21.72
1915–16	262	45.03	51.34	17.19	19.60
1916–17	263	51.14	63.61	19.44	24.19
5-year average	250	44.16	51.67	17.60	20.59

COST OF MARKETING LIVE STOCK

Prepared by the United States Department of Agriculture
Bureau of Markets, Charles J. Brand, Chief

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COST OF MARKETING LIVE STOCK.

LIST OF TABLES.

SUMMARY.

Introduction.—The following report relative to the costs of marketing cattle, sheep, and hogs is only a preliminary treatment of a subject which would require more extensive investigation to warrant broad conclusions.

Objects.—To determine (1) the relative amount of each item of expense incurred from the time of loading at shipping station until sold at destination; (2) shrinkage in live weight from loading to sale weights; (3) prevalent practices as to feeding in transit and at destination.

Scope and Methods of Investigation.—Records of 911 shipments of live stock aggregating 1,343 carloads (double decks counted as two cars) were obtained in 1917–18 by following shipments from loading point to market and from accounts of farmers, dealers, and cooperative associations. These shipments originated in Colorado, Kansas, Nebraska, Montana, Wyoming, South Dakota, Minnesota, Michigan, Indiana, Ohio, Missouri, Illinois, and Iowa.

Marketing Costs Classified.—The various items of expense are classified as (1) bedding and loading; (2) freight; (3) feed in transit; (4) commission; (5) yardage, feed, and other market expenses. Other factors directly affecting marketing costs are shrinkage, and death or injury in transit.

Cattle.—Records were obtained on 159 carloads of cattle, including 35 cars of pulp-fed cattle from Colorado and Nebraska, 75 cars of steers from other sections, and 49 cars of mixed cattle. The average cost of loading and bedding cattle cars was $0.012 per 100 pounds live weight; feed at market $0.035; commission charges $0.048 to $0.077; and other charges, not including freight, from $0.02 to $0.03. The total expense of marketing, including freight for varying distances, averaged approximately $0.43 to $0.46 per hundredweight for the pulp-fed cattle, $0.30 for steers from other sections, and $0.285 for mixed cattle. The shrinkage in weight varied from .23 to 9.01 per cent, averaging approximately 4 per cent.

Sheep.—Records were obtained on 54 carloads of sheep, including 11 single-deck and 43 double-deck cars. The cost of loading and bedding cars averaged $0.019 per 100 pounds live weight; and other marketing expenses, including freight, varied from $0.239 to $1.97 per hundredweight. The shrinkage in weight varied from 3.53 to 8.57 per cent, the majority of the shipments averaging approximately 8 per cent.

Hogs.—Records were obtained on 253 carloads of hogs, besides 620 carloads on which records on shrinkage only were secured. The cost of loading and bedding averaged 1.5 cents per 100 pounds live weight; feed at market approximately 8 to 9 cents; commission charges 4 to 10 cents; miscellaneous expense 2 to 10 cents, averaging approximately 5 cents; and the total cost of marketing, including freight from varying districts, from approximately 33 to 50 cents. The shrinkage in weight varied from 9.88 to minus 4.59 per cent.

INTRODUCTION.

The following report summarizes the results of an investigation[1] made by the Bureau of Markets during 1917 and 1918 relative to the cost of marketing cattle, hogs, and sheep.

It deals only in a limited and preliminary way with a large and complex problem. An adequate treatment of this subject would require much more extensive investigation than it was possible for the Bureau to devote to it with the limited number of men and short time available, together with demands concurrently imposed upon the organization by other important and pressing duties. The investigation also was hampered seriously by the abnormally severe weather conditions which prevailed during the winter of 1917–18. This report therefore must be regarded merely as an incomplete and inconclusive contribution to the subject.

OBJECTS OF INVESTIGATION.

The objects of the investigation were:

1. To determine the relative amount of each item of expense incurred from the time the animals reach the shipping station until they are sold at a centralized market or delivered direct to a packing plant.

2. To determine the amount of shrinkage resulting from moving stock to market; and to ascertain the effect on shrinkage of the different seasons, the length of time in transit, the size of the carload, and the treatment and fill at the destination.

3. To ascertain the prevalent practices in feeding live stock in transit and at destination, and the influence of the different seasons, the time en route, and other conditions on the amounts of feed used.

[1] This investigation was planned under the general supervision of C. S. Cole, in charge of food-supply investigations, and L. D. Hall, specialist in charge of marketing live stock and meats. The collection and compilation of the data were under the direction of Turner R. H. Wright, investigator in marketing live stock and meats. C. A. Burmeister, assistant in marketing live stock and meats, gave special assistance in preparing the report for publication and assisted in the field work. Others who assisted in the collection and compilation of the data were M. Y. Griffin, assistant in marketing live stock and meats; E. H. Schroer, assistant in marketing live stock and meats; G. H. Dacy, assistant in marketing investigations; S. Bray assistant in marketing live stock and meats; William L. Johns, assistant in food-supply investigations, and A. G. Bovay, assistant in marketing live stock and meats.

SCOPE AND METHODS OF CONDUCTING THE INVESTIGATION.

Records of 911 specific shipments of live stock totaling 1,343 cars, double-deck cars being counted as two, were obtained by following the stock from the shipping station to market or packing plant or by transcribing shipping accounts of farmers, local live stock shippers, and managers of live-stock shipping associations.

Field work was conducted from September, 1917, to June, 1918. A few of the records transcribed from the shipping accounts of farmers, local live stock shippers, and managers of live-stock shipping associations represent shipments made in 1915 and 1916. The shipments included in the records used originated in Colorado, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, Ohio, Oklahoma, and Wyoming.

MARKETING EXPENSES CLASSIFIED.

The items of cost considered include the bedding of cars, loading, feeding in transit, freight, and handling, feeding, and selling at the market. Factors affecting shrinkage in transit were given special consideration.

In order to avoid repetition in the discussion of the cost of marketing the different classes of live stock, the following brief explanation of the items of expense considered in the investigation is submitted.

For comparative purposes net shrinkage and all items of expense have been computed on the basis of live weight. Net shrinkage was based on loading station weights, while all items of expense were computed on market weights. Averages were computed from the totals of each group and in no instance by averaging averages.

LOADING AND BEDDING.

The record of expense in this investigation begins with the arrival of the stock at the loading station. The first item of expense to be considered, therefore, is the cost of loading, which includes the labor involved and the price of bedding. Data furnished by the crop correspondents of the Bureau of Crop Estimates, and summarized in Report No. 113, Office of the Secretary, "Methods and Costs of Marketing Live Stock and Meats,"[1] indicate that bedding material is furnished and placed in the car by the railroad in 35 per cent of the instances recorded, and in 45 per cent of the cases reported a charge is made for this service, varying from 25 cents to $2 per car. The preference as to kind of bedding, based on the order of greatest use is, straw, sand, sawdust, hay, no bedding, cinders, and shavings. Sand appeared to be used more extensively than any other material in bedding cattle in the western range States and in bed-

[1] By L. D. Hall, F. M. Simpson, and S. W. Doty.

ding hogs during warm weather. Straw is more popular in the North Central States or Corn Belt, and is preferred for bedding hogs during cold weather. The cost of loading stock is given in Report 113 as approximately $1 per car for cattle, $2 for hogs, and $1.50 for sheep. These figures represent the labor of loading and include feed only in the case of hogs. They do not include the expense of incidental repairs to cars or of inserting partitions.

Loading and bedding expense was found in the investigation herein reported to average 1.5 cents per hundredweight for hogs, 1.2 cents per hundredweight for cattle, and 1.9 cents per hundredweight for sheep. Nothing is allowed for the labor performed by the shipper in calculating this expense, as the figures given include only the cost of bedding material and the additional labor used.

FREIGHT.

One of the most variable items of expense in marketing stock is that for transportation, or the freight cost. Freight rates, minimum carload rates, and other provisions of railroad contracts for the transportation of live stock vary so greatly throughout the United States that general statements relative to the cost of transportation are subject to much modification.[1] In the Southeast and in some sections of the West it is the general practice to publish live-stock rates on a per car basis, the rate varying with the length of the car; while in most other territory the rates are named on a weight basis. Minimum weights and car lengths also vary among railroads in the same territory. A comparison of quoted tariffs effective in the different sections of the country is impracticable, owing to the variations named above, but certain general differences are shown in a compilation of rates in the three principal freight classification territories which has been made by Mr. Frank Andrews, of the Bureau of Crop Estimates. These averages, which were based on total tonnage carried and average length of haul, show average freight rates on live stock for the years 1911, 1912, and 1913, as follows: Eastern or official classification teritory, 10 cents per hundredweight for an average haul of 245.8 miles; southern classification territory, 11.9 cents per hundredweight for an average haul of 150.65 miles; western classification territory 14.9 cents per hundredweight for an average haul of 213.72 miles. These averages are inserted for relative comparisons only, inasmuch as all rates were increased 25 per cent in the spring of 1918 besides a previous increase in the rates in eastern classification territory in 1914. Beginning November 1, 1917, a Federal tax of 3 per cent on all freight charges has been in effect.

The two factors affecting freight costs which were given the most consideration in this report are length of haul and weight of load.

[1] Report 113, Office of the Secretary, U. S. Dept. of Agriculture.

Inasmuch as the shipper can regulate the latter factor more easily than he can the former it was used where possible to do so as a basis in comparing freight costs. In computing these costs, terminal and switching charges, amounting to $1.50 to $2 a car, and the Federal tax of 3 per cent were included wherever they were recorded.

FEED IN TRANSIT.

When the distance is such that the shipment to destination can not be made under 36 hours, according to the amended Federal 28-hour law, animals must be unloaded, fed, and watered. The railroads which have the heaviest long-distance shipments provide feed-in-transit stations for this purpose at intervals along their lines. Data collected in 1914 indicated that the charges for care, feed, and water at these points at that time ran as high as $10 or $12 a car, with a general average of about $5 a car. Railroads which do a small live-stock business often are without feed-in-transit stations; consequently the shipper patronizing these lines must make his own arrangements for feeding and watering.

Finishing-in-transit points are found in the Middle West near the centralized live-stock markets. These stations are maintained in addition to the feed-in-transit stations. They usually are equipped with large well-arranged stockyards, similar to those at the centralized markets, and are used both for finishing animals for advantageous marketing and as a place where animals may be kept in good condition while awaiting a favorable turn in the market. These stations are used principally for sheep and are an important factor in regulating the supply of this class of stock on the market. Stay of stock at these stations varies from 48 hours to 90 days, with an average of approximately 20 days. The charges for keeping sheep at these points average from 90 cents to $1.25 a head for a 20 day period and between 5 and 6 cents a head a day for a shorter period.[1]

The data obtained in this investigation on the amount and cost of feed in transit were more complete for hogs than for either cattle or sheep. In a number of the records of cattle and sheep shipments the items for the feed used at market and that used en route were not separated, on the account sales; consequently these items had to be considered together. In calculating expense of feed en route for hogs the quantity of feed used as well as the cost was determined. The cost, where the feed is purchased, fluctuates with the market price of feed, while the quantity given to the animals is believed to be more constant. By determining the average quantity of feed used in cars and en route, comparisons of market costs can be made applicable for any given perlod of time even though prices of feed fluctuate radically.

[1] Report No. 113, Office of the Secretary.

LOSS AND DAMAGE IN TRANSIT.

Consideration must be given to possible losses through death or injury to the animals while in transit or after arrival at the yards when shipping live stock to market. These losses in the aggregate reach large amounts and in many instances are due almost entirely to the negligence of the shipper in not taking proper precautions when loading.

While losses in transit, like shrinkage, can not be charged as expense, they affect returns on a consignment, and therefore may be a factor in determining profit or loss. Nothing was allowed for possible loss and damage in transit, however, in calculating the total costs per hundredweight of marketing stock. The information presented here on this subject is submitted for the purpose of giving the reader a general idea as to the extent of this item.

Table 1 shows by kinds and by months the ratio of dead stock to each 1,000 head of actual receipts at Kansas City during the four-year period 1914–1917, inclusive, as taken from data obtained by representatives of the Bureau of Markets. Only those animals which were unloaded dead at the yards or which died after unloading are included.

TABLE 1.—*Average number of dead stock received monthly at Kansas City during the four-year period, 1914–1917, inclusive.*[1]

Month.	Number of dead per 1,000 of receipts.		
	Cattle.	Hogs.	Sheep.
January	1.26	3.15	0.93
February	1.24	2.93	.79
March	.97	2.86	.71
April	.91	3.27	.78
May	.81	2.67	.64
June	.85	2.41	.90
July	.81	2.48	1.14
August	.80	2.58	1.41
September	.74	3.04	1.06
October	.63	2.01	1.36
November	1.63	2.93	2.61
December	2.24	3.25	1.98
Average	1.05	2.82	1.17

[1] Other data on file in the Bureau of Markets show that the average weight of hogs marketed at Kansas City and East St. Louis during 1916 and 1917 was 189 pounds. The number of dead hogs received in every 1,000 hogs marketed at these two points averaged 2.6 during the winter months and 2.4 during other seasons. This is equivalent to 2.6 pounds for every 1,000 pounds of live animal marketed, and represents a loss of one quarter cent a hundredweight for each cent a pound value. On this basis when hogs bring 20 cents in the market the loss due to death in transit and at the yards averages about 5 cents a hundredweight.

It is estimated by shippers and others familiar with the business, that the number of hogs unloaded dead in transit at points outside of the yards is less than 1 per cent of the total dead unloaded at the yards. Where cattle shipments are more than one day in transit it is believed that the number of dead stock removed from the cars at outside points

is considerable in the aggregate, especially among shipments of thin cattle from Western and Southwestern range States, as most of the deaths en route on long shipments occur during the first part of the trip.

Data on file relative to losses at Kansas City show that cattle losses for the same months of different years are consistently uniform. The greatest losses in each of four years' records were in December, and the losses in winter exceeded those in summer. Among the causes of loss are shipping thin cattle, especially in cold weather, underloading and overloading cars, and extreme cold weather. Hog losses are more uniform throughout the year. The greatest average loss at Kansas City for the four-year period was sustained in April. A survey of the losses at a number of other markets indicates that extreme changes in weather, especially changes from cold to hot weather, tend to increase losses by death. The first hot periods which come in May usually cause heavy losses in shipping hogs, and extreme hot weather in July and cold weather in January likewise increase the death loss. It is the opinion of many members of the trade and of shippers that the use of unclean cars or of manure for bedding tends to increase the death loss, especially in hot weather, since the fermenting manure generates heat. During December and January losses are attributed, among other causes, to the fact that hogs become warm from driving and then cool off too quickly after loading. Overloading also is given as a cause of loss in transit. Improper handling on the part of railroads is given by many shippers as a cause of considerable loss in shipping hogs. They assert that trains are often delayed several hours at terminals between box cars which shut off proper circulation of air and that train crews are careless about sprinkling hogs while in transit in hot weather.

Among the suggestions offered for decreasing losses are tar-papering the car on the exposed side during extremely cold weather, sprinkling often in hot weather, loading hogs at least one hour before train-moving time, allowing the hogs to rest at the loading station before loading, avoidance of overloading, using clean dry straw or shavings as bedding in winter, and using wet sand in the summer. Sheep losses are greatest when cars are overloaded. Occasionally during the fall heavy losses are experienced when sheep are allowed to drink excessively after a long trip.

Claims for loss and damage in transit on the great volume of live-stock business reach large amounts in the aggregate. Twenty-seven railroads, comprising about 35 per cent of the total owned mileage of the country, reported to the Bureau of Markets [1] that their claims paid on live stock during the fiscal year 1913–14 approximated

[1] Report No. 113, Office of the Secretary, U. S. Department of Agriculture.

almost 5 per cent of their live-stock earnings. Inasmuch as the valuation in the live stock contracts did not cover the full value of the stock, it is doubtful if the return was equal to the loss, even if the shippers recovered full contract valuation.

SHRINKAGE IN TRANSIT.

Shrinkage as used in this report means the net loss in weight resulting from the shipping of live stock from loading stations to the market, or the difference between weight at the loading stations and the hoof or sales weight at the market. Shrinkage is not considered in this report as a cost in marketing live stock, as it does not represent an actual money outlay, but it does affect profit or loss in the sale of stock, and all shippers desire to keep the amount of shrinkage reduced to the minimum. A normal shrinkage is to be expected, but an excessive fill resulting in waste of feed and possible discount in the price at the market ought to be avoided.

The subject of shrinkage has been given special attention in this investigation because it is one of the factors in marketing live stock, on which information is in greatest demand. The lack of scale facilities at many of the shipping stations made it impossible to obtain the necessary loading weights needed to determine the net shrinkage or fill at market on shipments originating at such stations. In other instances, where loading weights were obtained by the investigators while present at the time of loading, the shippers failed to furnish the sales weights at market as promised. Inasmuch as it was impracticable for the investigators to follow many of the cattle shipments to market, they had to depend, to a large extent, on the information they could obtain from shippers and their records.

FEED AT MARKET.

Feed given to live stock after its arrival at market is provided by the stockyards company on an order from the commission firm to whom the shipment has been consigned. The charges for this feed are entered on the account sales and are deducted from the gross proceeds in making returns to the shipper. As a rule, charges for feed at stockyards are higher than the prices quoted in the grain and hay markets, but these charges cover, in addition to the feed itself, the service of delivery and distribution of the feed to the animals in the pens. Prices for feed at stockyards, while influenced by market quotations in the grain and hay market, do not change with the minor fluctuations in these quotations.

Prices for feed at most of the centralized markets remained unchanged during 1914 and until the latter part of 1916. The usual prices were $20 a ton for prairie hay, $25 a ton for alfalfa, $1 a bushel

for corn, 75 cents a bushel for oats, and $2 a hundredweight for corn chops. Corn was advanced to $1.25 a bushel in October and November, 1916. This was followed by further advances in 1917, until, by the middle of the year, corn cost shippers from $2.25 to $2.75 a bushel. The price of hay at most of the larger yards remained at $25 per ton until the spring of 1917, when it was advanced to $30 a ton. Later these prices were further increased until even $35 and $40 a ton was reached.

Unless cattle and sheep have been on grain rations prior to shipping, the common practice is to feed only hay after arrival at market. Corn, either shelled or in the ear, is the usual feed for hogs at market.

COMMISSION.

Commission firms at centralized markets to whom stock is consigned for sale make a charge for their services. These charges usually are made on a car-lot basis, and the rates on cars of mixed stock in most instances are higher than those on straight cars. Commission costs have been computed in this report on the basis of a hundredweight of live animal in order to reduce all costs to a common basis for comparison. Commission charges have been increased at most of the markets since this investigation was made.

Tables 2 and 3 are summaries showing the commission charges at 12 of the leading centralized markets as taken from the latest information on file in the Bureau of Markets.

OTHER ITEMS OF EXPENSE.

There are a number of miscellaneous items of expense incurred in marketing live stock at centralized markets. These items consist of yardage, scale, inspection and insurance fees, and all other expenses at market centers except commission charges. Inasmuch as they have been computed in this report on the basis of the live weight of the stock, the weight of the carload is the principal factor affecting the amount per hundredweight of these items. The chief item included under "other charges" is yardage. This item varies at different markets, according to the kinds of live stock, as is shown in Table 4, which is a compilation of the yardage charges prevailing at 12 of the leading markets, according to the latest information on file in the Bureau of Markets.

TABLE 2.—*Commission rates on consignments of live stock at 12 markets.*

Market.	Cattle.			Hogs.			Sheep.		
	Per head.	Carload.		Per head.	Carload.		Per head.	Carload.	
		Minimum.	Maximum.		Single.	Double.		Single.	Double.
Buffalo	$1.00	$15.00	$20.00	.....	$12.00	$20.00	.....	$12.00	$20.00
Chicago	.70	14.00	18.00	$0.20	10.00 to 12.00	15.00 to 20.00	0.20	10.00 to 12.00	15.00 to 18.00
Cincinnati	1.00	.....	22.00	a.50	12.00	.....	b.25	12.00	24.00
Denver	.70	14.00	18.00	.....	12.00	18.00	.....	12.50	18.00
Fort Worth	.60	.....	15.00	.15	10.00	20.00	.15	10.00	20.00
Indianapolis	.75	.....	21.00	.25	12.00	20.00	.20	12.00	18.00
Kansas City	.70	14.00	18.00	.25	10.00 to 12.00	20.00	.20	10.00 to 12.00	18.00
Omaha	.75	15.00	18.75	.25	10.00 to 12.50	15.00 to 18.75	.....	12.50	18.75
Pittsburgh	1.25	.....	25.00	.....	15.00	25.00	.....	15.00	25.00
St. Louis	.75	15.00	18.00	.25	10.00 to 12.50	20.00	.25	10.00 to 12.50	18.00
St. Paul	.....	14.00	20.00	.....	12.00 to 14.00	15.00 to 18.00	.....	14.00	24.00
Sioux City	.75	15.00	18.50	.25	12.50	20.00	.20	12.50	18.50
MIXED STOCK.									
Buffalo	$1.00	.....	$20.00	$0.20	$12.00	.....	$0.20	$12.00	.....
Chicago	.70	.....	18.00	.20	12.00	$20.00	.20	12.00	$18.00
Cincinnati	1.00	.....	22.00	.25	.....	.....	.25	.....	.....
Denver	.70	$14.00	22.00	.25	12.00	18.00	.25	12.00	18.00
Fort Worth	.60	.....	.....	.15	.....	.....	.15	.....	.....
Indianapolis	.75	.....	21.00	.25	.....	23.00	.20	.....	23.00
Kansas City	.70	.....	18.00	.25	12.00	18.00	.20	12.00	18.00
Omaha	.75	.....	18.75	.25	12.50	18.75	.20	12.50	18.75
Pittsburgh	1.25	.....	22.00	.25	15.00	.....	.25	15.00	.....
St. Louis	.75	.....	18.00	.25	12.50	.....	.25	12.50	.....
St. Paul	.....	14.00	20.00	.....	14.00	18.00	.....	14.00	18.00
Sioux City	.75	.....	18.50	.25	12.50	25.00	.20	12.50	18.00

a Under eight head. b Graduated scale.

TABLE 3.—*Commission rates on stock driven or hauled in for 10 markets.*

Market.	Cattle.	Hogs.	Sheep.
Buffalo	$1.25 per head up to 5; each additional, $1.	35 cents per head up to carload rates.	35 cents per head up to car load rates.
Chicago	$1 per head for less than 15 head;	40 cents per head for less than 25 head.	25 cents per head for less than 40 head.
Cincinnati	$1 per head	50 cents each from 1–8; 25 cents over; maximum, $2.	25 cents per head.
Denver	60 cents from 1–25; over, at car-lot rates.	25 cents from 1–12; 20 cents up to 50; over, car rates.	20 cents from 1–50; over, at car-lot rates:
Kansas City	70 cents per head		25 cents per head.
Omaha	75 cents per head	25 cents from 1–40; over, at car-lot rates.	20 cents per head.
Pittsburgh	$1.25 per head	25 cents per head	25 cents per head.
St. Paul	$1 per head for less than 15 head.	50 cents per head for less than 24 head.	25 cents per head for less than 40 head.
St. Louis	75 cents per head	30 cents per head	30 cents per head.
Sioux City	75 cents per head	40 cents per head	20 cents per head.

TABLE 4.—*Yardage charges at 12 markets.*

Markets.	Cattle.	Calves.	Hogs.	Sheep and goats.	Horses and mules.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Chicago	30	15	10	7	.....
Kansas City	30	20	6	7	25
Omaha	25-30	10-20	8-10	5-7	25-30
St. Paul	30	15	10	7	.....
East St. Louis	30	15	10	7	.....
Fort Worth	30	20	10	7	30
Denver	30	15	10	7	30
Sioux City	30	20	10	7	30
Pittsburgh	15	8	6	4	.....
Buffalo	25	10	8	5	25
Cincinnati	25	15	8	6	25
Indianapolis	30	15	10	6	25

CATTLE.

METHODS OF MARKETING.

Information obtained in previous investigations conducted by the Bureau of Markets indicates that the number of cattle shipped to the large stockyards and packing centers varies from 40 per cent for some sections to 80 per cent for other sections of the country, while from 10 to 50 per cent, according to the section, is sold to local butchers and packers, and from 5 to 15 per cent is either farm slaughtered or marketed otherwise. The same information also indicates that the number of cattle sent to the large packing centers is least in the extreme eastern, southern, and western sections and greatest in the north central section. It is estimated from reports of the Bureau of the Census and other data available that one-half of the beef cattle pass through the large central markets, that one-third are sold for local slaughter, and that one-tenth are sold on farms and ranges.

Data available also show that approximately two-thirds of the cattle purchased as stockers and feeders are bought during the fall months, and that in the Corn Belt, where 65 per cent of the stockers and feeders are purchased in the fall, approximately 47 per cent of this class of stock is bought at the centralized markets.

The period of heavy marketing begins in midsummer at the southern markets when the movement of grass cattle begins. This movement of grass cattle first affects the volume of receipts at markets like Fort Worth, Kansas City, and East St. Louis in July, but the maximum is not reached until October, after which month the receipts decline until the movement ceases in December. The movement of grass cattle to the more northern markets like Chicago, Omaha, and St. Paul, does not affect the volume of receipts to any extent until September and does not reach its crest until October. The period of the range cattle movement to these northern markets is somewhat shorter than that to the markets farther south.

From 32 to 39 per cent of the total receipts of cattle at the centralized markets during the year are received during the three fall months, and from 40 to 60 per cent are received during the entire period of the range cattle movement, which extends over four to five months.

The movement of cattle from the feeding sections is fairly uniform throughout the year, the greatest contribution coming during the spring, at which time the cattle fed throughout the winter are in finished condition for the block. The smallest volume of receipts at the southern markets is recorded during the period from February to May, when slightly more than one-fifth of the total receipts of the year are received. The period of decline of the receipts at Omaha as indicated by the average receipts for 1916 to 1918, inclusive, begins in May and extends through July, approximately only 18 per cent of the total receipts of the year being received during those three months. Receipts are distributed more uniformly at Chicago than at any other market. The minimum receipts at this market are recorded during the three summer months, but they are only about 1 per cent less than the volume recorded during any three months of the first eight months of the year.

Data available show that the Corn-Belt States lead all other groups in the percentage of marketed cattle shipped in carload lots by owners as approximately one-third of the cattle sold from this group of States is disposed of in this manner. About one-fourth of the cattle marketed from the States of the southwestern and northwestern groups are shipped by owners. Approximately one-half the cattle of the Corn Belt and one-fourth of those in the southwestern and northwestern groups are marketed through dealer shippers.

COSTS OF MARKETING.

The investigation to obtain records on the cost of marketing cattle was first begun in the Flint Hills section of Kansas and the Osage Nation in Oklahoma, which are districts where cattle are finished on grass and marketed in the late summer and early fall. The lack of scale facilities at many of the loading stations, especially in Oklahoma, prevented, in a number of instances, obtaining loading weights needed to determine the shrinkage or fill resulting from shipping the stock to market. When the work was extended to the grazing sections of western Nebraska, Montana, Wyoming, the Dakotas, and Colorado, scale facilities were found to be limited there also. A factor which discourages the practice of weighing at loading stations in the western range States is the size of the shipments usually sent to market. In Montana and Wyoming, for instance, it often is necessary to drive cattle from 50 to 125 miles to a shipping station after they have been rounded up on the range, and the droves

thus collected usually are of such size as to require a train of several cars to transport them to market. The task of weighing several cars of cattle when the scales will not accommodate a full carload, is not only laborious but requires considerable time which very few shippers like to spare in their desire to get their stock loaded as quickly as possible.

Another factor which hampered the investigation in Montana and Wyoming was the shortage of stock cars in the fall of 1917, which prevented shippers from moving their cattle and sheep to market as they had planned. In a number of instances the field men found shippers who had driven their stock long distances to loading stations only to find that the cars which had been ordered had not arrived and the railroad agent could give no definite information as to when they could be expected. The severe winter of 1917–18, together with the demands made on the railroads to move war supplies, affected the transportation service of this country to such an extent that shipping of live stock was made more difficult than usual, and consequently the records obtained applying to shipments made during that period covered abnormal conditions. When the investigation was extended to those States where cattle are finished in feed lots, better weighing facilities were found and complete records were more easily obtained. Altogether complete records were obtained on 159 cars of cattle, of which 49 cars were composed of cattle of mixed classes and grades, and 35 cars of pulp-fed cattle from feed lots in the beet-sugar districts of eastern Colorado and western Nebraska, and 79 cars of steers from other sections. The data on these shipments were segregated for comparison into the three groups.

The shipments of steers and mixed cattle originated in the following States:

State of origin.	Steers.		Mixed cattle.	
	Shipments.	Cars.	Shipments.	Cars.
Ohio	17	26	9	9
Missouri	14	25	9	11
Illinois	8	10	17	19
Indiana	4	4	2	2
Tennessee	4	4	.....	.....
South Dakota	1	2	1	2
Kentucky	1	2	.....	.....
Nebraska	1	2	.....	.....
Kansas	1	1	.....	.....
Michigan	1	1	1	1
Mississippi	1	1	.....	.....
Iowa	.....	.....	3	3
Minnesota	.....	.....	1	1
Wisconsin	.....	.....	1	1
Total	53	79	44	49

Practically all these shipments were feed-lot cattle or native cattle, as distinguished from range or western cattle. The data on

the steers and mixed stock have been assembled in tabular form on the basis of the size of load, based on weight. All cars weighing less than 20,000 pounds were segregated into the first group. Other groups were created for each additional 4,000 pounds of weight added.

Table 5 shows the different items of expense incurred computed on the basis of live weight at the market. The averages were computed by using the total weights and total costs for all animals in each group and not by averaging averages. In addition to the various items of expenses incurred in marketing, figures are included showing the net shrinkage per hundredweight of stock resulting from shipping the animals to market.

The steers in the group of 79 cars on which marketing costs were assembled were of fairly uniform weight, ranging from an average of 1,040 pounds to 1,223 pounds at the market, the grand average being 1,113 pounds. The sizes of loads based on the number of animals to the car were quite uniform, the average for the different groups varying from 17 in the lightest loads to 24 in the heaviest, with an average of 21 for all cars studied. Only a few of the records showed the length of the cars used, but the observations of the field men engaged in the investigation indicated that the most common length used was 36 feet. The least shrinkage took place in the lightest loads, and with this exception the amount of shrinkage did not seem to be affected by size of load based on weight, the maximum variation being less than 0.2 per cent. The average shrinkage for all the shipments was 4.02 per cent, or 40 pounds for a 1,000-pound steer.

TABLE 5.—*Costs and shrinkage in marketing cattle at centralized markets.*

Classes of cattle.	Number of cars.	Average number of head to car.	Average length of haul.	Average car loading weight.	Average car sales weight.	Average sales weight per head.	Average shrinkage per hundredweight.	Freight cost per hundredweight.	Feed cost per hundredweight.	Commission cost per hundredweight.	Other charges per hundredweight.
			Miles.	*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Steers	5	17	238	18,019	17,478	1,040	3.00	18.4	3.7	7.0	2.7
	31	21	182	21,661	20,771	1,144	4.11	16.2	4.8	6.5	2.6
	29	20	265	25,905	24,872	1,223	3.99	19.3	2.1	5.1	2.1
	14	24	218	29,892	28,651	1,176	4.15	14.5	2.6	5.2	2.0
Average	79	21	223	24,447	23,465	1,113	4.02	17.2	3.4	5.7	2.3
Mixed classes and grades.	9	22	117	17,223	16,490	738	4.25	13.6	2.9	7.7	3.0
	21	24	179	21,876	21,029	887	3.88	16.2	4.9	6.6	2.9
	13	29	190	26,135	25,125	855	3.87	12.9	3.0	5.8	2.8
	6	25	186	29,988	28,215	1,136	5.91	15.6	1.1	4.8	2.2
Average	49	25	172	23,145	22,161	883	4.25	14.8	3.5	6.2	2.8

The average weight of the animals in the mixed loads, with one exception, was almost as uniform as in the case of the steers, ranging from 738 to 887 pounds. The one exception was a group of six cars which averaged 1,136 pounds per animal. The grand average for

all cars of mixed cattle was 883 pounds. The heaviest shrinkage in this group took place in the lightest and the heaviest loads, the latter shrinking most. Those loads ranging in weight from 20,000 to 28,000 pounds suffered an average shrink of approximately 3.9 pounds per hundredweight, or 39 pounds for a 1,000-pound animal. The average number of animals loaded per car was quite uniform in this group also, ranging from 22 to 29 and averaging 25 for the entire group.

Minimum carload weights are obtained easily in shipping cattle, as shown in the average weights of the loads studied. In fact, the minimum weight for cattle is often exceeded without undue crowding. Reference is made elsewhere to the difficulty of loading cars of hogs and sheep to the minimum weights for these animals. As shown in the table, the average length of haul for the different groups was quite uniform, consequently there was little variation in the freight charges per hundredweight. The rate for the 79 cars of steers, based on the actual weights and the average distance shipped, 223 miles, was 17.2 cents per hundredweight, the range being from 14.5 to 19.3 cents per hundredweight. The average length of haul for the mixed cars was 172 miles and the average freight cost per hundredweight was 14.8 cents, with a range of 12.9 to 16.2 cents.

Feed costs shown here are those for feed given to the animals after arrival and before sale at the markets, inasmuch as the length of haul was not great enough to require unloading and feeding under the amended 28-hour law. Based on weight of the cattle this cost is small, varying from 1.1 cents to 4.9 cents per hundredweight, and averaging approximately 3.5 cents a hundredweight for both steers and mixed cattle. In very few instances did the account sales show the quantity of feed used.

Inasmuch as commission charges usually are made on a carload basis, and it is the tendency of shippers to load cars to capacity in shipping cattle, it is to be expected that the commission cost per hundredweight would not vary to any great extent. This is borne out by the figures shown in the table, the average commission cost per hundredweight varying from 4.8 cents to 7.7 cents, the maximum cost applying to the lightest loads, and vice versa.

Yardage and miscellaneous items listed under "Other items of expense" when computed on the basis of live weight at the market amounted to only 2 to 3 cents per hundredweight on both classes of cattle.

Summarizing the costs shown in Table 5, it will be noted that, exclusive of the loss due to shrinkage, the total cost of marketing the steers was 28.6 cents per hundredweight, as compared with 27.3 cents per hundredweight for the mixed cattle. The average total cost per head for marketing the steers amounted to $3.18 and for

the mixed cattle $2.41. The average shrinkage on the steers totaled 44¾ pounds and on the mixed cattle 37½ pounds per animal. This loss in weight measured by the market price of the stock amounts to a considerable sum, and shippers in consigning stock to centralized markets give this matter serious consideration, inasmuch as the amount of shrinkage often determines their choice of a market and the profit or loss.

Table 6 is a summary of the data on the cost of marketing pulp-fed cattle from western Nebraska and eastern Colorado. The first three shipments originated in the latter State, two of them at the same loading station. The two Nebraska shipments also originated at the same station.

The average weight of the cattle in three of the shipments was quite uniform, ranging from 1,025 to 1,043 pounds at the market. The other two shipments averaged 975 and 1,420 pounds per animal. The lighter cattle suffered the heaviest shrink, averaging 6.65 pounds per hundredweight. One shipment shrunk 2.15 per cent. The amount of shrinkage on the other three shipments was approximately the same, being slightly over 3 per cent. The average car sales weight ranged from 22,550 to 24,972 pounds; the shipment with the maximum weight was loaded with the lightest weight cattle. The average number of cattle loaded per car ranged from 17 of the heavier ones to 25 of the lighter ones, the average for all shipments being 22.

All the pulp-fed cattle with the exception of one shipment had been purchased as feeders, with feed-in-transit privileges, which means that the freight charges had been paid to Missouri River markets at the time of purchase. Therefore, the charge of approximately 7 cents per hundredweight for freight does not represent the true freight cost on these shipments. The exception referred to took a freight rate of 30.8 cents, which represents the approximate rate from eastern Colorado points to Missouri River markets.

TABLE 6.—*Costs and shrinkage in marketing pulp-fed cattle from sugar-beet districts of Colorado and Nebraska.*

Number of cars.	Average number of cattle per car.	Length of haul.	Average car loading weight.	Average car sales weight.	Average sales weight per animal.	Shrinkage per hundred weight.	Freight cost per hundredweight.	Feed cost per hundredweight.		Commission cost per hundredweight.	Other costs per hundredweight.
								En route.	At market.		
		Miles.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Cents.*	*Cents.*		*Cents.*	*Cents.*	*Cents.*
12	25	660	26,560	24,792	975	6.65	30.8	.....	1.5	6.1	2.6
4	22	517	23,046	22,550	1,025	2.15	7.1	3.7	1.9	5.9	2.5
4	22	579	23,685	22,958	1,043	3.07	7.1	3.7	1.2	5.7	2.4
7	17	563	24,679	23,931	1,420	3.03	9.0	3.8	0.9	5.0	1.8
8	22	563	23,293	22,568	1,038	3.11	7.7	2.4	0.6	5.8	2.5
35	[1] 22	[1] 593	[1] 24,707	[1] 23,645	[a] 1,071	[1] 4.30	[1] 16.1	[1] 3.3	[1] 1.2	[1] 5.7	[1] 2.4

[a] Average.

All the shipments of pulp-fed cattle had to be unloaded for feed and water en route, in compliance with the amended 28-hour law. The cost of feed used en route was obtained on all but one shipment. This cost ranged from 2.4 cents to 3.8 cents per hundredweight of live animal, the cost on three of the shipments being approximately 3.7 cents per hundredweight.

The feed cost at market ranged from 0.6 cents to 1.9 cents per hundredweight of cattle, the average being 1.2 cents.

The commission costs on all the shipments were practically uniform, ranging from 5 to 6 cents per hundredweight.

The items of expense listed under "Other charges" averaged 2.4 cents per hundredweight; there was little variation in these charges.

The expense of marketing these pulp-fed cattle approximated 42 to 45 cents per hundredweight. This does not include cost of labor in loading or materials used in bedding cars, nor is allowance made for shrinkage or possible loss or damage from death or injury in transit.

RESULTS OF OTHER SHRINKAGE INVESTIGATIONS.

As a supplement to the data obtained on shrinkage of cattle, attention is called to the results obtained in an investigation made by the Bureau of Animal Industry. That bureau made rather an exhaustive study of shrinkage of range cattle shipped from the southwestern and northwestern range states to centralized markets in 1910 and 1911.

TABLE 7.—*Shrinkage of range cattle and cottonseed-meal-fed steers in transit from Southwestern States to centralized markets, 1910–11.*

Description of shipments.	Number of shipments.	Number of cattle.	Average weight at origin.	Net shrinkage.[1]		Ratio of shrinkage to live weight at origin.
				Range.	Average.	
			Pounds.	*Pounds.*	*Pounds.*	*Per cent.*[2]
Range calves in transit less than 36 hours	8	859	166	+14–13	+ 3	+1.8
Range calves in transit over 36 hours	5	475	209	+ 9–0	+ 4	+1.9
Range cows in transit less than 36 hours	8	509	749	+12–40	14	1.9
Mixed range cattle in transit less than 36 hours	9	791	589	+12–50	3	0.5
Mixed range cattle in transit 36 to 72 hours[2]	7	1,810	575	+27–3	+ 3	+0.5
Mixed range cattle in transit 105 hours	2	588	541	7–42	38	7.0
Cottonseed-meal-fed steers in transit less than 36 hours	4	680	1,266	41–67	57	4.5
Cottonseed-meal-fed steers in transit over 36 hours	6	616	862	47–73	59	6.8

[1] + indicates gain in weight.
[2] Cattle were in transit 54 to 72 hours, but the figures are for the second portion of the journey, and not for the total time in transit.

In addition, data were obtained on the shrinkage of feed-lot cattle shipped from Oklahoma, Iowa, and Illinois in 1911 and 1912. The results of this investigation were published in Department Bulletin

25, The Shrinkage in Weight of Beef Cattle in Transit, and Tables 7, 8, and 9 are summaries of the data appearing in that bulletin.

Table 7 is the summary of the data obtained during the summer and fall of 1910 and winter and early spring of 1911. Data on nearly 6,000 head of cattle are included in this table. The year in which the work was done was a very dry one, with little grass, and was conducive to a poor fill at origin and a small shrink in transit for range cattle. With two exceptions the weather was good when all the shipments of range cattle were moving to market. Two shipments which were destined to Kansas City were caught in snowstorms and their shrinkage was heavy when compared with the other shipments. The variations in the net shrinkages were quite wide for the different shipments. The greatest variations was found with the mixed range cattle in transit less than 36 hours, and the next greatest with range cows. The difference was not so great with the calves nor with the fed cattle. The variation was greater with the fed cattle which were in transit over 36 hours than with those in transit for a shorter period. The average net shrinkage for all of the range cattle was small.

It will be noted from a study of Table 7 that the weights of the range calves showed a fill instead of a shrink; also that the range cows and mixed range cattle had a very slight shrink. The heavy shrinkage on the mixed range cattle in transit 105 hours was caused by a four-day snowstorm during shipment, and at one of the stations where they were unloaded for feed and water the water pipes were frozen, so that they obtained very little water. The fact that these range cattle were shipped in a season of drought from pastures where there was little grass and water undoubtedly tended to cause a very light net shrinkage at the market. On the other hand, the cottonseed-meal-fed steers were shipped under more normal conditions, with the result that the net shrinkage was greater. These fed cattle were shipped from feed lots in Oklahoma to Kansas City and St. Louis, and with the exception of one shipment, which arrived at market during a raging blizzard, weather conditions were very good. The data obtained on these cottonseed-meal-fed shipments indicated very clearly that the greater part of the shrinkage on the cattle occurred during the first 24 hours of the journey.

Table 8 is a summary of the results obtained in shipping range and feed-lot cattle from the Northwestern States to the centralized markets during the season of 1911–12. The range cattle originated in Wyoming, Montana, and western Nebraska, and were sent to market from September to December. The shipments of fed cattle originated in Iowa and Illinois, the work being finished in the latter State in June, 1912. The net shrinkage on all the cattle was quite uniform.

TABLE 8.—*Shrinkage of range and feed-lot cattle in transit from Northwestern States to centralized markets, 1911–12.*

Description of shipments.	Number of shipments.	Number of cattle.	Average weight at origin.	Net shrinkage.[1]		Ratio of net shrinkage to live weight at origin.
				Range.	Average.	
			Pounds.	*Pounds.*	*Pounds.*	
Mixed range cattle in transit less than 36 hours	16	866	909	35–114	58	6.38
Mixed range cattle in transit 36 to 72 hours.	11	794	978	+ 1–54	36	3.68
Mixed range cattle in transit over 72 hours.	8	695	1,030	12–97	53	5.00
Mixed corn-fed cattle in transit less than 26 hours	6	278	1,218	20–78	51	4.19
Mixed corn-fed cattle in transit 26 to 30 hours	38	1,209	1,214	9–123	51	4.20
Mixed corn-fed cattle in transit 30 to 36 hours	19	527	1,086	18–88	45	4.15
Silage-fed cattle in transit less than 20 hours	7	397	1,232	+ 7–67	a 23	1.87
Silage-fed cattle in transit over 20 hours....	11	438	1,121	7–75	32	2.85

[1] + indicates gain in weight.

a This average is unusually low because of one shipment of 107 head, which actually gained 7 pounds per head after the fill at market. If this shipment is left out, the average net shrinkage of the remaining 290 is raised to 30 pounds.

The data indicate that the greatest shrinkage occurs during the first portion of the journey. The work during 1911–12 was conducted under more normal weather conditions than that conducted in the previous season in the Southwestern States. The range cattle from the Northwest were marketed while the weather was good and conditions were favorable for keeping shrinkage to the minimum. The fed cattle which were shipped later went to market when weather conditions were more severe. Some of the shipments experienced extremely severe weather at the market. The data shown in Table 8 on fed cattle is more comparable with that obtained in the investigation reported herein, and it will be noted that in both investigations there is little variation in the average percentage of shrink, the average being slightly more than 4 per cent.

Table 9 represents a summary of work conducted in 1911 to supplement the other investigations made. Approximately 5,000 animals were weighed in securing the data shown in this table, and the results are a good indication of the shrinkage to be expected during a normal season. It will be noted that there was a considerable variation in the net shrinkage, especially in those shipments from the Northwest. The cattle shipments from that section originated in Montana and western South Dakota. Those from the Southwest originated in Texas. Frequent rains had fallen in Texas during the winter of 1910–11 and good grass was abundant the following summer. The grazing season of 1911 was about a normal one and the results obtained from the shrinkage work that fall may be taken as an average. The cattle were either in good flesh or fat. Most of the range cattle are driven anywhere from one to upward of a hundred miles to the railroad for shipping, and as a rule they are driven from 15 to 20

miles each day and then grazed along the trail for a few hours, and this procedure is kept up until shipping pens are reached. It is very seldom that range cattle are fed on arrival at the shipping pens before loading, and in many cases they are allowed little, if any, water. As a result of this treatment, range cattle have undergone considerable shrink by the time they are loaded on cars at the shipping stations. Hay is seldom placed in the cars for the stock to eat while in transit.

Among the conclusions reached in the investigation conducted by the Bureau of Animal Industry was that the shrinkage of range cattle in transit over 70 hours during a normal year is from 5 to 6 per cent of their live weight. If they are in transit 36 hours or less the shrinkage will range from 3 to 4 per cent of their live weight. Also, the shrinkage of fed cattle does not differ greatly from that of range cattle for equal periods of time. It varied from about 3 per cent with all of the silage-fed cattle and 4.2 per cent with the corn-fed cattle, when both classes of these animals were in transit for less than 36 hours, to 5.4 per cent for the pulp-fed cattle, which were in transit from 60 to 120 hours.

TABLE 9.—*Shrinkage of range cattle in transit to market from Northwestern and Southwestern States, 1911.*

Description of shipments.	Number of shipments.	Number of cattle.	Average weight at origin.	Net shrinkage.		Ratio of shrinkage to live weight at origin.
				Range.	Average.	
			Pounds.	*Pounds.*	*Pounds.*	*Per cent.*
Southwestern range calves en route less than 36 hours	3	211	246	11–13	12	4.9
Northwestern range steers en route over 36 hours	5	730	1,193	65–83	70	6.0
Southwestern range cows en route less than 24 hours	8	1,307	860	26–60	34	4.0
Southwestern range cows en route 24 to 36 hours	17	1,383	907	4–64	32	3.6
Northwestern range cows en route over 36 hours	3	126	1,020	50–72	61	6.0
Southwestern mixed range cattle en route less than 24 hours	13	849	783	[1] +2–71	26	3.3
Southwestern mixed range cattle en route 24 to 36 hours	5	150	751	19–75	42	5.6
Northwestern mixed range cattle en route over 36 hours	4	180	1,066	14–32	21	2.0

[1] + indicates gain in weight.

SHEEP.

METHODS OF MARKETING.

Information previously collected by the Bureau of Markets and published in report 113, Office of the Secretary, shows that the number of sheep shipped to the centralized markets of the United States, as compared with the number produced, varies from 35 per cent for some sections to 90 per cent for others, while from 10 to 50 per cent are sold to local butchers and packers and from 1 to 10 per cent, according to the section, are sold in the carcass or marketed otherwise.

The same information shows that the practice of shipping to centralized markets prevails most generally in the Central States, and that the greatest prevalence of local marketing is found in the extreme eastern, western, and southern sections. These comparisons represent relative proportions and not actual numbers of arrivals marketed from the various sections. By comparing one class of animals with another, in specific groups of States, it was found in all sections except the cotton States that sheep show the largest proportion shipped in carload lots by growers. In fact, the proportion of sheep marketed by owners leads to the conclusion that the majority of sheep producers are large scale growers or feeders who handle stock in such numbers as to permit marketing in carload lots.

The data used in this report on cost of marketing sheep were collected on shipments originating in Colorado, Illinois, Kansas, Michigan, Missouri, Montana, Ohio, and Wyoming. With the exception of Kansas, from 58.9 to 74.5 per cent of the sheep marketed from the Central States in this group are sold to regular local dealers for shipment to market.[1] Kansas sheepmen market 30.9 per cent of their marketable sheep through local dealers and ship 61.2 per cent in carload lots. The proportion of direct shipments in carload lots in the other four Central States where data on sheep marketing were collected varies from 6.3 per cent in Ohio to 35.9 per cent in Illinois. In the former State 10 per cent of the sheep are sold to local butchers for the retail market trade. In Michigan 20.5 per cent are marketed in this way.

The percentages shipped direct to market in carload lots in the three Western States, in which data were obtained on cost of marketing sheep, ranged from 65.8 per cent in Colorado to 85.2 per cent in Wyoming. In the former State 23.8 per cent of the sheep marketed are sold for shipment to feeding points as compared with 8 per cent thus sold in Montana and 7 per cent in Wyoming. Montana sheepmen dispose of 8.4 per cent of their market sheep through local dealers and 10 per cent are bought by local butchers for retail trade.

Information from various reliable sources indicates that four-fifths of the sheep and lambs marketed in the United States pass through the large central markets, while only one-eighth are sold for local slaughter and from 3 to 4 per cent are slaughtered on farms and ranges.

The replies of the special live-stock and price reporters of the Bureau of Crop Estimates relative to the numbers of feeder sheep and lambs bought in the different seasons shows that fall buying is most prevalent.[2] Figures for the Corn-Belt States, with those for the two sheep-feeding States of Michigan and Ohio added, show that 65 per cent

[1] Report 113, Office of the Secretary.
[2] Report 113, Office of the Secretary, U. S. Dept. of Agriculture.

of the stocker and feeder sheep are bought in the fall. The replies further show that the stockman of these areas buy 47 per cent of their feed-lot supplies at the centralized markets. The daily telegraphic loading reports received from railroad division superintendents by the Bureau of Markets show that the large movement of sheep and lambs to feed lots takes place from the latter part of September to the first part of December. Kentucky, Missouri, and Texas buy a large percentage of their stocker and feeder lambs in the summer months.

Large numbers of sheep are shipped from the surplus-producing mutton States in the fall, which makes this the heavy marketing season for sheep. It is estimated that these States market 62 per cent of their sheep and lambs during the fall months. The sheep-feeding sections of the United States tend toward selling in the summer, with the exception of those few States which make a specialty of shipping spring lambs. Lambs from the feed lots of Colorado and Nebraska are sent to market from February to June.

COSTS OF MARKETING.

Records were obtained on shipments comprising 11 single and 43 double-deck cars. These records have been summarized according to States of origin in Table 10. Presented in this form it is possible to compare the costs of marketing sheep in the Corn Belt and in the sheep-feeding sections of the North Central States with the costs of marketing sheep from the western sheep-producing States. The lack of scale facilities at many sheep-loading stations prevented the securing of loading weights needed in determining shrinkage in transit. This accounts for the small number of records used in the comparisons.

TABLE 10.—*Costs and shrinkage in marketing sheep and lambs at centralized markets.*

State of origin.	Number of decks.	Average number of animals per deck.	Average length of haul.	Average loading weight.	Average sales weight.	Average shrink per hundredweight.	Freight cost per hundredweight.	Commission cost per hundredweight.	Feed cost per hundredweight.	Other charges per hundredweight.
			Miles.	*Pounds.*	*Pounds.*	*Pounds.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Ohio	23	111	300	9,908	9,068	8.48	19.3	8.6	[a] 11.9	6.0
Missouri	6	115	157	9,158	8,374	8.57	[b] 25.9	13.8	.....	7.9
Illinois	18	112	404	9,381	9,026	8.15	[c] 19.8	[c] 9.5	.....	[c] 5.8
Michigan	2	107	385	8,655	7,950	8.15	21.5	10.0	12.9	5.5
Kansas	4	125	91	10,170	9,565	5.95	9.9	7.3	.....	6.7
Montana	16	114	1,113	.....	10,150	.....	66.5	8.0	[d] 116.8	5.6
Colorado	10	117	694	11,381	10,760	5.45	[e] 7.7	6.5	[f] 15.5	5.5
Wyoming	18	126	120	12,610	12,165	3.53	[g] 22.9	5.8	2.1	4.8

[a] Including 3.2 cents per hundredweight paid for feed en route for 731 sheep totaling 60,370 pounds at market.
[b] All single-deck cars.
[c] Average on two single-deck loads averaging 9,935 pounds at market.
[d] Amount paid for feed en route. These lambs were marketed in four lots over a period of 23 days, being held at a feeding station outside of Chicago during that time.
[e] Not including freight paid to river markets when lambs were bought as feeders with feed-in-transit privilege.
[f] Including 10.9 cents per hundredweight for feed en route.
[g] Includes freight charges paid to river markets on 5 double-deck cars.

Eleven shipments comprising three single and ten double-deck cars on which records were obtained originated in Ohio. In the case of two of the single-deck car shipments, the shippers decided to ship their stock in one car to save freight and had ordered one double-deck car, but after waiting two weeks for it two single-deck cars were accepted, which the shippers estimated increased their expense by $25. The three single-deck cars and two double-decks were marketed at Pittsburgh, while seven double-decks were sent to Buffalo. The other double-deck car was billed to Cleveland. The length of haul for all the Ohio shipments ranged from 170 to 366 miles. A record of the time in transit was obtained on only five shipments, and with the exception of 27 hours for the shortest haul the time ranged from 50 to 61 hours. The only explanation to be offered for the long period of time consumed in transporting these cars to market is that not enough cars of stock were being shipped in that section to justify special live-stock trains, consequently they were forwarded in mixed freight trains. Some of the shipments were sent to market during the severe winter of 1917–18, when transportation service, especially between Mississippi River points and the Atlantic seaboard, was badly congested; but inasmuch as records of shipments originating in 1915 and 1916 also show that 50 to 60 hours, including time spent at rest and feeding stations under the 28-hour law, were required to haul stock 300 to 350 miles; this does not explain the delay entirely.

With the exception of one mixed single-deck car of lambs and sheep, all of the shipments originating in Ohio consisted of lambs, and the number loaded per deck ranged from 100 to 116, with an average of 110. The sales weight per deck for these lambs ranged from 7,700 to 9,513 pounds, averaging 8,911 pounds. Minimum carload weights for sheep range from 12,000 to 14,000 pounds for single-deck cars and 18,000 to 23,000 pounds for double-deck cars. The maximum weight recorded on a double-deck car in the reports obtained on Ohio shipments was 41,800 pounds on two cars at the loading station, which is an average of 20,900 pounds per car. These cars weighed 38,050 pounds, or an average of 19,025 pounds each at the market. The maximum weight on a single-deck car was 10,850 pounds at loading station and 10,100 pounds at the market. While it is possible to attain the minimum weight for double-deck cars in loading sheep, especially for the lower weights, it is practically impossible to do so in loading single-deck cars without undue crowding, which would increase the risk of injury and loss in shipping.

The fact that it is difficult to load cars with lambs to the minimum weight necessarily has a bearing on freight costs in shipping sheep or lambs to market. The shipper is compelled to pay the basic rate on the full minimum weight, and if he is unable to load to this minimum, the rate per hundredweight on the weight actually loaded is

increased in proportion to the difference between weight actually shipped and the minimum weight. For this reason shippers using single-deck cars and paying single-deck car rates usually pay more per hundredweight in shipping sheep than those who use double-deck cars. In two of the three single-deck shipments from Ohio the length of haul was less than 200 miles and the freight charges paid amounted to 25 and 26 cents a hundredweight. Compared with this are two double-deck cars shipped approximately the same distance, the freight charges on which amounted to 15 to 17 cents per hundredweight. One of these double-deck cars weighed 16,020 and the other 15,400 pounds at the market, the heavier car being almost 2,000 pounds under the lowest minimum weight for double-deck cars.

Shrinkage is affected by so many factors that it necessarily varies widely. This is verified by the data on the Ohio shipments of sheep, where it will be noted that the shrinkage from loading station to market ranged from 5.6 to 12.09 per cent.

By averaging the data on shrinkage in a great number of shipments, a fair idea of the shrinkage to be expected under average conditions in a given section may be obtained, but it must be understood that for individual shipments a wide fluctuation from the normal can be expected. The figures on shrinkage appearing in Table 10 must be taken for their respective values based on the number of shipments used in the averages.

Commission charges on sheep at Pittsburgh at the time these shipments were made were $9 for a single-deck car and $16 for a double-deck car. At Buffalo the charge was $14 for a double-deck car. These charges when reduced to the basis of a hundredweight of live animal ranged from 7.4 to 10.4 cents, the average for all the Ohio shipments being 8.6 cents per hundredweight.

Feed was given the lambs at stations en route to market in four of the eleven shipments. The cost of feed for these particular shipments amounted to slightly over 3 cents per hundredweight, or an average of 1.1 cents per hundredweight for all shipments. There was a wide variation in the cost of the feed used at market in feeding these lambs, the cost per hundredweight varying from 5.3 cents to 18.8 cents.

The chief item included under "Other charges" is yardage, which in the case of sheep at the time of this investigation amounted to 5 cents a head at most markets. These "other charges" averaged 6 cents per hundredweight on the shipments originating in Ohio.

The six cars of sheep originating in Missouri shown in Table 10, were all single-deck cars, and, with the exception of two cars of mixed sheep and lambs, all were lambs. The number of animals per car ranged from 88 to 135, the average being 115. All of the shipments were marketed at National Stock Yards, Illinois, and the

length of haul varied from 125 to 177 miles. The time en route ranged from 11 to 19 hours, with an average of 17 hours. There was a wide range in the weight of the loads, the minimum at the market being 5,880 pounds and the maximum 10,410 pounds, and in this instance both loads originated at the same loading station. The rate for the heavier load, based on the actual weight, was 21.1 cents per hundredweight on the actual weight, as compared with 40.8 cents per hundredweight for the lighter load.

The net shrinkage on four cars was quite uniform, being approximately 8.75 pounds per hundredweight. The other two cars had a shrinkage of 6.39 and 10.77 per cent, and the greater shrinkage occurred in the lightest load, which consisted of 88 mixed lambs and old sheep. It is of interest to note that with the exception of the loads of sheep originating in Kansas the average net shrinkage on the sheep loaded in each of the Central States where data were obtained ranged from 8.15 to 8.57 per cent.

The commission charges for selling sheep at National Stock Yards at the time these shipments were made ranged from $10 to $12 for a single-deck car. One of the cars on which records were obtained was used by two shippers who combined in shipping, and the division of this shipment at the market for the purposes of selling and proper accounting resulted in increasing the commission charges to $17.40. As stated elsewhere, the size of the load affects the commission cost per hundredweight when these charges are made on a car-lot basis. In the case of the shipments from Missouri the commission costs for the maximum weight load amounted to 9.6 cents per hundredweight, as compared with 17 cents for the minimum weight load.

The expense of marketing sheep from Missouri listed under "Other charges" ranged from 5.5 to 11.1 cents per hundredweight, the average being 7.9 cents. The maximum charge in this instance was caused by the increase in yardage charges from 5 to 8 cents a head.

The shipments of sheep originating in Illinois on which data were collected consisted of eight double-deck cars consigned from Chicago to Pittsburgh, and two local shipments, both single-deck cars, one of which went to Chicago and the other to Indianapolis. The only information obtained on the shipments originating in Chicago was the weights at loading and destination, which made it possible to calculate the net shrinkage resulting. This shrinkage varied from 1 to 3.91 per cent and averaged 3.55 per cent. Probably the reason the shrinkage on these shipments was low was because the sheep received a good shrink while en route to Chicago from the original loading station. The shrinkage on the two local shipments was approximately the same, that on one car amounting to 5.29 per cent and the other 5.67 per cent. These two cars, one a mixed load and the other consisting entirely of lambs, averaged 9,785 pounds in

weight at the market, and as the marketing costs shown in the table on shipments from Illinois apply entirely to them no detailed explanation of the items is deemed necessary.

The data on sheep from Michigan apply to one double-deck car shipped to Buffalo. The feed cost shown includes 3.1 cents per hundredweight for feed en route. The four decks shown as originating in Kansas and the 16 decks loaded in Montana comprised one shipment each. The outstanding features of the Montana shipment are the cost of freight and the feed charges. The freight cost is relatively large because of the long distance over which the shipment had to be transported. The feed cost was large because the sheep were held at a feeding station outside of Chicago and were marketed in four separate lots over a period of 23 days. As this is a common practice in marketing sheep from Montana and Wyoming, the costs shown are of particular interest as illustrating the allowances western shippers must make in consigning their lambs to the centralized markets.

The two shipments originating in Colorado consisted of fat lambs loaded in the beet-pulp feeding district in the northern part of the State. One shipment of two double-deck cars went to St. Joseph, and the other, consisting of three double decks, was sold in Kansas City. The latter shipment was the heavier, averaging slightly more than 11,000 pounds per deck at the market. The sales weight of the St. Joseph consignment averaged 10,383 pounds per deck, but there were three fewer lambs loaded to each deck. The net shrinkage on the lambs consigned to Kansas City was 1 per cent less than on those to St. Joseph, but the cost of feed en route to market was $1 more per car, the average feed cost en route on both shipments being 10.9 cents per hundredweight. No feed cost was shown on the account sales of the lambs sold at St. Joseph. The bill for feed on those sold at Kansas City amounted to 7.4 cents per hundredweight.

The freight cost shown on the Colorado lambs is misleading because it does not include the amount paid when the lambs were sold as feeders with the freight paid to the Missouri River with feed-in-transit privileges. The 7.7 cents per hundredweight shown here represents the additional freight cost which the feeders paid when their lambs were ready for market.

The records of the four shipments from Wyoming were obtained from one of the largest sheep growers in that State. The consignments, all double-deck cars, were marketed in Denver, but the freight was paid to the Missouri River on five of these cars. The rate to Denver, on those shipments on which freight was paid only to that point, amounted to about 10 cents per hundredweight, while those shipments on which freight was paid to the Missouri River took a rate slightly more than 32 cents per hundredweight. It is a common practice in Wyoming and Colorado when consigning sheep to Denver

to pay the freight to the Missouri River markets. The sheep or lambs can then be sold in Denver and reshipped to the river markets for resale or slaughter or they can be purchased by feeders who wish to finish the animals in the feed lots.

It is a matter of particular interest that all of the cars loaded in Wyoming were loaded much heavier than those loaded in the other States, the full minimum weight being attained in every shipment. The cars averaged 126 sheep to the deck, and with the exception of 130 wethers all of the sheep were old ewes. The net shrinkage resulting on the Wyoming shipments varied widely, ranging from 1.86 per cent to 6.29 per cent, and averaging 3.53 per cent. The feed costs at market on these Wyoming sheep represent an average cost for feed where hay only is fed.

It is almost impossible to make a fair comparison of the average total costs of marketing sheep in the different States shown in Table 10, because of the wide variation in conditions applying to each State and the incompleteness of the data obtained. Not including shrinkage, the total average cost of marketing, according to the records collected, varied from 23.9 cents per hundredweight for the two double-deck cars originating in Kansas and shipped 91 miles to Kansas City, to $1.97 per hundredweight on eight double-deck cars shipped from the neighborhood of Billings, Mont., to Chicago, a distance of more than 1,100 miles, and held from 3 to 23 days at a feeding station near that market. The cost of marketing sheep from Illinois and Wyoming on which records were obtained was slightly more than 35 cents per hundredweight in each case. The distance from the points of origin to the markets to which the shipments were consigned also was about the same in each case, approximately 125 miles. The total expense of marketing sheep from Ohio, Missouri, and Michigan also was approximately the same, varying from 45.8 cents for the first-named State to 49.9 cents for the latter.

Summarizing the data shown in Table 10, it is very conclusively shown that sheep and lambs shrink more in proportion than other classes of stock while en route to market. Also it is apparent that owing to the difficulty of loading to the minimum car weight now required in the tariffs on sheep, the freight expense for the load actually carried is greater than for other kinds of animals.

A study of the data on margins per hundredweight received by local dealer-shippers as published in Report No. 113, reveals that this class of shipper obtained an average margin on sheep ranging from 59 cents per hundredweight in Nebraska to $2.05 per hundredweight in Virginia. Compared with the estimated value of the animals sold, local dealers who consigned to 15 centralized markets in 1915 realized a gross margin of 12.9 per cent on their sheep as compared with 10.34 and 10.33 per cent on cattle and hogs.

HOGS.

METHODS OF MARKETING.

Approximately 60 per cent of the hogs marketed in this country are shipped to market from October to March, inclusive. The chief reason for this seasonal movement is the prevailing practice of having the bulk of the pigs farrowed in the spring in order to grow and fatten them most economically. Inasmuch as corn is the chief fattening ration for finishing hogs and spring pigs reach the period ready for fattening coincident with the maturity of the corn crop, this also tends to influence the marketing of these animals during the cold weather months. Another factor which formerly influenced fall and winter marketing of hogs more than it does now was the development of winter pork packing prior to the invention and development of artificial refrigeration. With present facilities for freezing and curing pork, cold weather is no longer such a factor in regulating the movement of hogs to market.

Inasmuch as the production of hogs supplements the production of corn, it is only natural that the Corn Belt should be the center of the hog-raising industry of this country. The replies from the special live stock and price reporters of the Bureau of Crop Estimates, summarized in Report No. 113, indicate that the percentage of hogs shipped by owners runs highest in the Corn-Belt States, where about 23 per cent are sold in this manner. With the exception of Nebraska, from 60 to 69 per cent of the hogs in the Corn Belt are sold to regular local dealers, Nebraska reports indicating that local dealers handle 45 per cent, while 35 per cent are shipped in carloads by owners. Other North Central States not in the Corn Belt proper, which furnish a large percentage of market hogs, sell 48 to 63 per cent of their hogs through local dealers, while from 5 to 11 per cent are shipped by owners. These latter States market a number of hogs through cooperative shipping associations and to local butchers; also as farm-cured meats. An increase in the development of the hog industry in any section is usually followed by an increase in the percentage of hogs shipped by owners.

Data presented in Report No. 113 also show that the number of hogs shipped to the centralized markets varies from 25 per cent for some sections to 80 per cent for others, while 10 to 40 per cent, according to the section, are sold to local retailers and packers and from 5 to 35 per cent are farm slaughtered and sold in the carcass or as farm-cured meats. It is estimated from the reports of the Bureau of the Census and other data that two-thirds of the hogs slaughtered in the United States pass through large central markets, one-twelfth are sold for local slaughter and about one-fourth are slaughtered on farms and ranges.

COSTS OF MARKETING.

Records on 873 shipments of hogs, comprising 1,193 cars, double decks being counted as two cars, were used in this report in making the comparisons on cost of marketing hogs. These records represent two distinct methods of marketing, viz, consignment to commission firms at public stockyards and consignment direct to packing companies. Stock marketed by either method is consigned either by the farmer, local stock buyer, or live-stock shipping association. A commission firm receiving consignments at public stockyards has entire charge of the disposition of the stock, which is sold to packer buyers, city butchers, or shippers. The proceeds of the sale, less commission and other marketing charges, are the net proceeds received by the owner of the stock. Stock consigned direct to a packer is sold either at a price previously stipulated or at the market price on day of arrival.

In making comparisons of the two methods of marketing hogs, the data on shipments to centralized markets were tabulated so as to show the differences in shrinkage of shipments made by farmers, local dealers, and cooperative shipping associations. Table 11 shows the number of the records according to class of shipper, destination, and in those cases where shipments were consigned direct to packing plants, the treatment in regard to fill after arrival. As has been stated, many of the records used in this investigation were obtained by transcribing records and account sales of local dealers. Inasmuch as this class of shippers market more hogs than do farmers or cooperative shipping organizations and are more inclined than farmers to keep accounts of their shipments, the majority of the records were obtained from them. The data collected have been assembled in several tables, so as to show the effect of variations in factors that influence shrinkage and marketing expenses. These factors are: Amount of feed placed in car or fed en route; season of the year; time in transit; distance traveled; and size of load on basis of both weight and number of animals per car.

TABLE 11.—*Classification of records of hog shipments according to season, source, and destination.*

Class of Shipment.	Winter.		Summer.		Spring and fall.	
	Shipments.	Decks.	Shipments.	Decks.	Shipments.	Decks.
Dealers' shipments to centralized markets	215	329	147	207	106	138
Farmers' shipments to centralized markets	40	42	56	74	40	48
Cooperative shipments to centralized markets	79	91	9	10	7	9
Direct shipments to packing plants with water fill at destination	44	72	8	9	71	90
Direct shipments to packing plants with no fill at destination	35	52	9	11	7	11
Total	413	586	229	311	231	296

The differences between the cost of marketing hogs at centralized markets and those incurred in shipping direct to packing plants are found mainly in the expenses incurred after arrival at destination. Prior to such arrival the expenses, with the exception of feed en route, are approximately the same for both classes of shipments, the expens for loading and bedding cars is the same, and the freight costs do not differ materially for hauls of approximately equal length. When hogs are consigned direct to packing plants, however, they are not fed as a rule after arrival at destination, therefore there is a tendency on the part of shippers to place more feed in the car than when shipping to centralized markets. The shipments of hogs consigned to a centralized market will incur certain expense after arrival, such as yardage, commission, and feed, none of which is incurred by shipments consigned direct to packing plants. The total expense of marketing at centralized markets, therefore, will exceed the expense of shipping direct to packing plants, to the extent of the amount of these costs.

The margin between prices paid for hogs delivered direct to packing plants and the prices paid at the centralized markets, with the differences in the costs and shrinkage resulting from shipping to either point, will determine which is the most profitable method of marketing. The prices paid at the open markets must be great enough to allow for the additional expense incurred at these markets and for any increased shrinkage over that resulting from shipping direct to packing plants. The shrinkage and the items of expense incurred in shipping hogs to centralized markets have been computed in detail in this report. The data obtained on shipping hogs direct to packing plants were compiled so as to show the average shrinkage resulting from shipping to these plants.

FREIGHT COSTS.

Most freight tariffs on hogs specify 17,000 pounds as the minimum weight for the standard single-deck car 36 feet in length, and this weight was used in this report as a basis in determining freight costs. When shipments are made approximately equal distances, the weight of load is the most important factor governing freight costs, inasmuch as there is a tendency among shippers to load less than the minimum weight, and the basic weight always is charged for the minimum weight whether that amount is loaded or not.

In Table 12 is shown the actual average freight cost per hundredweight and per car for loads of varying weights shipped 50 miles or less, 51 to 100 miles, 101 to 150 miles, 151 to 200 miles, and more than 250 miles. In the first two columns are shown the range of miles over which shipments were made with the average for each group. The third column shows the number of cars in each group of weights on which freight costs were obtained, while the fourth and fifth columns

show the average and the range of sales weights for each weight group. In the sixth column is shown the difference in weight between the actual load and the minimum. The shipper was compelled to pay the basic freight rate on this difference, thereby increasing the freight cost per hundredweight when based on the weight actually shipped. In the seventh and eighth columns are shown the average freight costs paid per car and per hundredweight for each weight group. The lower division of the table shows the average cost per car and per hundredweight for all weights for the different groups of distances. It is impossible to explain all the variations in freight costs because of the many variations in railroad rates in different sections of the country, and as the data were taken from shipments made in several States, it was to be expected that the results obtained would not be entirely constant. It is apparent, however, that a shipper who loads less than the minimum weight is required to pay higher freight costs for the load actually carried. Out of a total of 253 cars on which records of freight costs were obtained 158 or 62.5 per cent weighed less than 17,000 pounds.

TABLE 12.—*Freight charges on hogs according to length of haul and weight per carload.*

Length of haul.		Number of cars.	Car sales weights.[1]		Average number of pounds below minimum weight per car.	Average freight cost.	
Range.	Average.		Range.	Average.		Per car.	Per hundredweight.
Miles.	*Miles.*		*Pounds.*	*Pounds.*		*Dollars.*	*Cents.*
28–39	35	4	10,050–13,760	12,073	4,927	13.40	11.1
23–49	39	4	14,060–14,970	14,501	2,499	16.40	11.3
36–37	37	2	15,520–15,880	15,700	1,300	15.85	10.1
23–40	34	5	16,220–16,710	16,525	475	15.13	9.2
23–50	38	10	14,730–19,700	18,128	.....	16.90	9.3
54–95	66	16	10,290–13,710	12,882	4,118	22.88	17.4
54–72	64	11	14,020–14,830	14,380	2,620	19.91	13.8
54	54	1	.....	15,770	1,230	16.84	10.7
54–80	61	4	16,000–16,910	16,320	680	21.46	13.1
53–99	67	16	17,080–21,150	19,442	.....	22.88	11.8
118–131	122	12	9,640–13,560	12,144	4,856	21.80	18.0
108–139	123	11	14,210–14,990	14,580	2,420	24.53	16.6
101–150	123	13	15,050–15,980	15,631	1,369	24.59	15.7
101–150	120	23	16,000–16,950	16,546	454	24.82	15.0
101–144	120	35	17,200–23,390	18,791	.....	28.02	14.9
159–237	200	7	10,280–13,720	12,249	4,751	21.62	17.7
176–216	195	7	14,010–14,910	14,473	2,524	28.37	19.5
181–243	196	12	15,180–15,970	15,497	1,503	32.19	20.8
176–243	195	17	16,120–16,940	16,541	459	30.65	18.5
160–243	200	30	17,050–20,200	18,137	.....	30.30	16.7
263–490	353	5	15,240–15,990	15,506	1,494	32.87	21.2
296–421	337	4	16,300–16,910	16,688	312	40.71	24.4
413–427	421	4	17,220–18,345	17,853	.....	32.76	18.3
23–50	37	25	10,050–19,700	16,066	934	15.82	9.8
54–95	61	48	10,290–21,150	15,758	1,242	21.81	13.8
101–150	121	94	9,640–23,390	16,474	526	25.56	15.5
159–243	198	73	10,280–20,200	16,415	585	29.68	18.1
263–490	369	13	15,240–18,345	16,592	408	35.25	21.2

[1] Weights in this column are grouped as follows: (1) below 14,000, (2) 14,000–15,000, (3) 15,000–16,000, (4) 16,000–17,000, (5) 17,000 and over.

For comparative purposes and to show the possible extent to which freight charges may be increased on the actual weight of loads weighing less than the minimum, Table 13 is inserted.

TABLE 13.—*Percentage increase in freight charges on carload weights below 17,000 pounds minimum for single-deck 36-foot car of hogs.*

Weight (pounds).	Percentage increase.
16,500	3.0
16,000	6.25
15,500	9.7
15,000	13.3
14,500	17.2
14,000	21.4
13,500	25.9
13,000	30.8
12,500	36.0
12,000	41.7

The calculations in this table are based on the proviso that the car rate will be charged on a minimum of 17,000 pounds. It will be noted that, theoretically, as the weight of load decreases the freight cost on the weight actually shipped increases on a sliding scale varying from 3 per cent for the first 500-pounds decrease in weight to 5.7 per cent on the tenth 500-pounds decrease.

A comparison of the freight costs for hauls of different lengths shows that, in the cases cited, the rate on shipments of hogs transported an average of 37 miles was approximately 3.5 cents per hundredweight less than for those hauled an average of 61 miles. Increasing the length of haul from 61 to 121 miles increased the freight cost slightly more than 2 cents per hundredweight. An addition of 77 miles to the latter distance increased the cost almost 2.5 cents per hundredweight and an addition of 171 miles more increased the rate another 3 cents. In other words, the rate for all loads transported less than 50 miles was 9.3 cents per hundredweight on a 17,000-pound basis, and this was increased to an average of 20.75 cents for all loads hauled more than 250 and less than 500 miles.

Feed in transit.—It is a common practice in shipping hogs to centralized markets or direct to packing plants to provide them with feed either in the car, or at rest and feeding stations where they may be unloaded to comply with the 28-36-hour law. In order to indicate the extent of the practice among farmers and dealers of feeding hogs en route to centralized markets, Table 14 was constructed. This table shows the variation in the extent of feeding according to season and length of time in transit. The tendency as a rule, both among farmers and dealers, is to practice feeding en route to a greater extent during the winter months than in any other season.

TABLE 14.—*Hog shipments fed in transit by dealers and farmers, according to season and length of time in transit to centralized markets.*[1]

Season.	Shipped by—	Hours in transit. Range.	Hours in transit. Average.	Length of haul (miles).	Total cars.	Carloads fed. Number.	Carloads fed. Per cent.	Carloads not fed. Number.	Carloads not fed. Per cent.
Winter	Dealers	4–14	11	77	81	56	69.1	25	30.9
		15–20	17	147	69	52	75.4	17	24.6
		21–30	26	310	68	62	91.2	6	8.8
		31–68	40	342	50	44	88.0	6	12.0
		72–184	100	429	10	10	100.0	.....	.....
	Average	4–184	25	212	278	224	80.6	54	19.4
	Farmers	7–14	12	76	13	6	46.2	7	53.8
		16–20	17	177	3	3	100.0	.....	.....
		21–30	26	410	14	14	100.0	.....	.....
		32–43	36	455	12	12	100.0	.....	.....
	Average	7–43	25	303	42	35	83.3	7	16.7
Spring and fall	Dealers	7–14	12	110	30	19	63.3	11	36.7
		15–20	18	180	58	42	72.4	16	27.6
		21–30	24	246	30	22	73.3	8	26.7
		33–52	37	380	20	18	90.0	2	10.0
	Average	7–52	20	208	138	101	73.2	37	26.8
	Farmers	6–14	12	125	11	1	9.1	10	90.9
		15–20	17	157	20	13	65.0	7	35.0
		21–24	22	189	5	5	100.0	.....	.....
		30–46	37	515	12	10	83.3	2	16.7
	Average	6–46	21	242	48	29	60.4	19	39.6
Summer	Dealers	2–14	10	131	46	23	50.0	23	50.0
		15–20	16	217	83	48	57.8	35	42.2
		21–30	23	342	49	43	87.8	6	12.2
		31–36	34	440	19	18	94.7	1	5.3
		55–83	73	729	11	11	100.0	.....	.....
	Average	2–83	22	275	208	143	68.8	65	31.2
	Farmers	4–14	9	121	26	20	76.9	6	23.1
		15–20	18	224	24	23	95.8	1	4.2
		21–27	23	308	14	10	71.4	4	28.6
		32–36	35	407	7	7	100.0	.....	.....
		78	77	686	3	3	100.0	.....	.....
	Average	4–78	20	241	74	63	85.1	11	14.9

[1] This includes shipments fed in car and at feeding stations.

Table 15 is a summary of the data showing the amount of feed per hundredweight given to hogs in car and en route by farmers and dealers during the different seasons and according to the length of time in transit. It is apparent from this table that for the shipments of which records were obtained farmers fed more heavily in car and en route than local dealers. This is further corroborated by averaging all the data for each class of shippers according to time in transit but without regard to seasons. Such an average shows that for any given length of time in transit more feed per hundredweight was used for the farmer shipments than for the dealer shipments. It also shows that as the length of time in transit increased, the difference between the amounts fed by the two classes of shippers increased. Stating the proposition somewhat differently, farmers and dealers both increased the amount of feed given to hogs en route as the time in transit increased, but farmers increased the amount in the greater proportion.

TABLE 15.—*Effect of season and time in transit on quantity of feed given to hogs in transit by dealers and farmers in shipping to centralized markets.*

Season.	Shipped by—	Hours in transit. Range.	Hours in transit. Average.	Length of haul.	Number cars or decks	Average number hogs per car.	Average loading weight per car.	Average weight of hogs.	Average feed per hundredweight of animal.
				Miles.			*Pounds.*	*Pounds*	*Pounds.*
Winter	Dealers	4–14	11	84	56	74	16,015	213	1.34
		15–20	17	160	52	77	16,485	211	1.89
		21–30	26	324	62	77	16,477	215	2.08
		31–49	39	368	44	75	16,628	215	2.78
		72–184	100	429	10	88	18,383	200	2.85
	Average	4–184	26	239	224	76	16,478	216	2.04
	Farmers	11–14	12	71	6	76	17,750	234	1.45
		16–20	17	177	3	79	16,948	217	2.89
		21–30	26	410	14	73	16,353	229	2.63
		32–43	36	455	12	73	15,848	222	3.95
	Average	11–43	27	347	35	74	16,470	221	2.85
Spring and fall	Dealers	7–14	12	123	19	76	16,133	213	1.54
		15–20	18	194	42	75	15,857	211	1.88
		21–30	24	226	22	75	17,823	237	1.85
		33–52	37	400	18	72	16,837	231	2.24
	Average	7–52	22	224	101	74	16,513	221	1.84
	Farmers	14–19	17	147	14	65	15,272	243	1.63
		21–24	22	189	5	58	16,242	280	2.12
		35–46	37	553	10	68	16,917	201	2.41
	Average	14–46	25	294	29	65	16,007	245	1.99
Summer	Dealers	4–14	10	164	23	62	15,213	242	1.77
		15–20	18	226	48	75	16,303	218	1.78
		21–29	23	339	43	66	16,487	251	1.84
		31–36	33	437	18	61	16,677	271	3.02
		55–83	73	728	11	80	17,093	212	3.44
	Average	4–83	31	315	143	68	16,291	236	2.04
	Farmers	4–14	10	134	20	69	16,063	232	1.57
		15–20	18	233	23	66	16,190	245	2.14
		21–27	23	268	10	69	16,934	249	2.20
		32–36	35	407	7	66	16,393	257	2.79
		78	78	686	3	91	20,580	225	4.74
	Average	4–78	32	226	63	68	16,499	240	2.18

Both classes of shippers used the least amount of feed in the spring and fall, the farmers feeding the maximum amount in the winter months.

The data show that both farmers and dealers take the length of time in transit into consideration in deciding on the quantity of feed to place in cars for hogs shipped to market. For instance, in the shipments on which data were collected for Table 15, it will be seen that increasing the length of time in transit for dealer shipments in the winter months from an average of 11 to an average of 17 hours, increased the quantity of feed per hundredweight of live animal 0.55 pound, or 41 per cent. Increasing the time from 11 to 39 hours increased the feed used 1.44 pounds per hundredweight, or 107.5 per cent. However, when the time in transit was increased to an average of 100 hours the amount of feed used was only slightly greater than that for 39 hours. There was an increase of 0.34 pound per hundredweight or 22 per cent in the quantity of feed

used by dealers in the spring and fall months when the time in transit was increased from an average of 12 to an average of 17 hours. When the time exceeded 30 hours the increase in feed amounted to 0.7 pound per hundredweight, or 45 per cent, and in the case of farmer shipments the increase was approximately 0.8 pound per hundredweight, or 48 per cent. Dealer shipments made during the summer received approximately the same amount of feed per hundredweight for an average of 10, 18, and 23 hours; when the time was increased to an average of 33 hours, the average quantity of feed given was increased by 1.45 pounds per hundredweight, or 71 per cent.

Dealer shipments in transit an average of 73 hours received 94 per cent more feed than those in transit an average of 10 hours. Farmer shipments in transit an average of 12 hours during the winter months received 1.45 pounds of feed per hundredweight of live animal while en route to market. When this time was increased to an average of 17 hours, the amount of feed was increased 100 per cent, and when it was increased to an average of 36 hours the feed was increased 172 per cent. During the summer season farmer shipments in transit an average of 10 hours received an average of 1.57 pounds of feed per hundredweight of live animal and an addition of 8 hours to this time increased the feed supply en route by 36 per cent. Those shipments in transit an average of 35 hours received approximately 78 per cent more feed than those in transit an average of 10 hours, and when the time was increased to an average of 78 hours the amount of feed was increased 202 per cent.

Most of the feed used by farmers in feeding their hogs en route to market is of their own production and in most of the records obtained from this class of shippers no figures were given as to the value of the feed used. Local dealers usually find it necessary to purchase all the feed they use and at the time of this investigation they were paying from $1.25 to $2 a bushel or from 2.2 to 3.6 cents a pound for corn. At these prices the expense for feed used en route varied from an average of 4.5 to 7.3 cents per hundredweight of live animal in winter and summer and from 4 to 6.6 cents in spring and fall.

Feed at destination.—The data relative to the amount of feed fed to hogs after arrival at the centralized markets indicate that there is little uniformity as to the amount of feed given, and it is very evident that shippers differ in their opinions as to the amount of feed needed to put the stock in the best condition for sale. The extreme range in the amount of feed given to hogs according to the records collected was from 0.57 to 6 pounds per hundredweight of live animal. A summary of 152 consignments containing 13,898 animals showed that an average of 1.95 pounds of corn per hundredweight of hogs was used at destination. There was no evidence to indicate that the amount of feed given varied with the seasons. Corn at the market cost the shippers from $1 to $2.50 a bushel.

In the majority of instances the highest prices were paid, making the average cost approximate 8 to 9 cents a hundredweight of live animal.

Commission charges.—Commission charges on hogs, like those on cattle and sheep, usually are made on a car basis; consequently, the weight of the load is the only factor which would affect this item of cost. If the load is light in weight the commission cost per hundredweight would be greater than for a heavier load. However, the effect of weight of load is not sufficient materially to influence commission costs as commission firms impose a higher charge if the load is extremely heavy. The commission cost per hundredweight on the shipments of hogs on which records were obtained ranged from 4 to 10 cents, the average being approximately 6 cents.

Other costs.—The item "Other costs" which represents miscellaneous expenses incurred at the central markets, the chief of which is yardage, range from 2 to 10 cents per hundredweight for hogs, the average being about 4 to 5 cents. Yardage charges usually are assessed at so much per head, the present charge for hogs being 8 cents at most markets, consequently the weight of the animal is the only factor which would affect this item of cost when computed on the basis of weight of animal.

SHRINKAGE IN TRANSIT TO CENTRAL MARKETS.

The factors which are given consideration under this head are length of time in transit, number of animals per car, weight of load, size of hogs, seasonal conditions, shipping agency, i. e., farmer, dealer, or cooperative live-stock shipping association, and treatment in regard to feeding en route and feeding and watering at destination.

Relation of length of time in transit to shrinkage.—Tables 16 and 17 were compiled to show the effect of time in transit on shrinkage. In constructing these tables the data were grouped according to whether the animals had access to feed en route, whether the shipper was a farmer or a local dealer, the season of the year, and the length of time in transit. The hogs in the shipments on which data were used in making Table 16 had access to feed either in car or en route. While those on which data were obtained for Table 17 received no feed from time of loading until after arrival at market. The quantity of feed given the hogs on which the data were obtained in Table 16 is shown in Table 15. The shipments were grouped according to time in transit as follows: 14 hours and less, 15 to 20 hours, 21 to 30 hours, 31 to 50 hours, and 51 hours and more. No distinction was made as to weight of cars or number of animals loaded per car. A study of Table 16 reveals that shipments made by farmers sustained a smaller net shrinkage than those made by dealers. In fact, some of the groups of farmer shipments show a fill instead of a shrink, while in every group of dealer shipments there was a loss in weight instead of a gain. The shrinkage on the dealer shipments was greatest during the summer months and least in the winter. The loss in

weight on shipments made during the spring and fall coincided approximately with the average shrinkage for all seasons. Farmer shipments with access to feed en route sustained the least shrinkage during the spring and fall months, the maximum shrinkage being recorded in the summer on those shipments in transit more than 20 hours. Farmer shipments made during the winter months showed little fluctuation in the average shrinkage, the percentage being approximately the same for any given length of time in transit. In both farmer and dealer shipments there was little fluctuation in the shrinkage until after the shipments had been in transit more than 20 to 30 hours, after which period the loss in weight increased more abruptly. The number of farmer shipments without access to feed en route, shown in Table 17, were not sufficient to make a fair comparison with this class of shipments. In this group all shipments made during the spring and fall showed a slight gain instead of a loss in weight. Shipments made by dealers without access to feed showed a steady loss in weight as the time in transit increased.

TABLE 16.—*Effect of season and time in transit on shrinkage of hogs having access to feed in transit when shipped by dealers and farmers to centralized markets.*

Season.	Shipped by—	Average hours in transit.	Number of cars or decks.	Average car loading weight.	Average car sales weight.	Shrinkage or gain per hundredweight.[1]	
						Average.	Range.
				Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Winter	Dealers	11	56	16,015	15,772	1.52	+ 1.55–4.70
		17	52	16,485	16,225	1.57	+ 2.73–5.10
		26	62	16,477	16,295	1.11	+ 1.82–4.71
		39	44	16,628	16,246	2.30	+ 1.47–6.90
		100	10	18,383	17,499	4.81	2.79–7.50
	Average	26	224	16,478	16,192	1.74	+ 2.73–7.50
	Farmers	11	6	17,750	17,665	.48	+ 1.41–1.07
		17	3	16,948	16,816	.77	+ .09–1.25
		26	14	16,353	16,250	.63	+ 3.33–2.26
		36	12	15,848	15,697	.94	+ 2.49–2.65
	Average	27	35	16,470	16,352	.72	+ 3.33–2.65
Spring and fall	Dealers	12	19	16,133	15,491	2.18	+ .38–4.41
		18	42	15,857	15,608	1.57	+ 1.14–4.71
		24	22	17,828	17,559	1.51	+ 2.37–3.98
		37	18	16,837	16,386	2.68	.94–5.00
	Average	22	101	16,513	16,204	1.87	+ 2.37–5.00
	Farmers	17	14	15,272	15,252	.14	+ 2.89–3.15
		22	5	16,242	16,360	+ .73	+ 3.64–1.39
		37	10	16,917	16,733	1.09	+ .14–2.42
	Average	25	29	16,007	15,953	.33	+ 3.64–3.15
Summer	Dealers	10	23	15,213	14,938	1.81	.18–2.75
		18	48	16,303	16,035	1.64	+ 2.59–4.90
		23	43	16,487	16,157	2.01	+ 1.48–9.88
		33	18	16,677	16,157	3.12	+ 1.59–9.06
		73	11	17,093	16,559	3.12	+ 1.56–5.84
	Average	31	143	16,291	15,951	2.09	+ 2.59–9.88
	Farmers	10	20	16,063	16,052	.07	+ 1.88–2.07
		18	23	16,190	16,253	+ .39	+ 4.59–3.43
		23	10	16,934	16,831	.61	+ 4.53–3.66
		35	7	16,393	16,083	1.90	+ 1.28–4.92
		78	3	20,580	19,680	4.37	–4.37
	Average	32	63	16,499	16,425	.45	+ 4.59–4.92

[1] + indicates gain in weight.

TABLE 17.—*Effect of season and time in transit on shrinkage of hogs not having access to feed in transit when shipped by dealers and farmers to centralized markets.*

Season.	Shipped by—	Average hours in transit.	Number of cars or decks.	Average car loading weight.	Average car sales weight.	Shrinkage or gain per hundredweight.[1]	
						Average.	Range.
				Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Winter	Dealers	11	25	16,492	16,251	1.45	+ 1.04–4.55
		17	17	16,069	15,746	2.01	+ .17–4.58
		26	6	16,263	15,890	2.30	1.35–4.27
		49	6	15,683	15,135	3.50	1.96–5.00
	Average	19	54	16,243	15,928	1.94	+ 1.04–5.00
	Farmers	12	7	15,488	15,484	.02	+ 1.24–1.88
Spring and fall	Dealers	11	11	17,025	16,738	1.68	–5.28
		17	16	16,737	16,518	1.31	+ .91–3.33
		26	10	15,909	15,497	2.59	+ .13–6.42
	Average	18	37	16,599	16,307	1.76	+ .91–6.42
	Farmers	11	10	17,325	17,290	.20	+ 4.22–1.38
		17	7	16,206	16,254	+ .30	+ 4.18–3.09
		32	2	17,562	17,655	+ .53	+ 1.52– .49
	Average	16	19	16,938	16,946	+ .05	+ 4.22–3.09
Summer	Dealers	10	23	14,068	13,770	2.12	.06–6.81
		17	35	15,657	15,290	2.34	+ 2.56–5.77
		24	7	16,803	16,386	2.49	.60–3.94
	Average	15	65	15,218	14,870	2.29	+ 2.56–6.81
	Farmers	7	6	14,878	14,748	.87	+ .73–2.28
		21	5	17,974	17,838	.76	+ .68–5.56
	Average	10	11	16,285	16,152	.82	+ .73–5.56

[1] + indicates gain in weight.

Summarizing the facts brought out in Tables 16 and 17, the most striking features shown are that the use of feed en route did not appear to influence materially the shrinkage of the hogs in transit, especially for those shipments en route less than 30 hours; that the hogs shipped by farmers showed a lighter shrinkage than those shipped by dealers; that after the first 20 to 30 hours en route the shrinkage increased in direct ratio with the increase of time in transit; that during the first 20 to 30 hours the average shrinkage fluctuated very little, ranging between 1 and 2 per cent for dealer shipments and from a slight gain to less than 1 per cent with farmers' shipments, and that the average shrinkage for both farmer and dealer shipments did not exceed 3 per cent until shipments had been in transit approximately 50 hours or more.

Relation of number of hogs per car to shrinkage.—Tables 18 and 19 were constructed to show the relation, if any, of size of load, based on the number of animals per car, to shrinkage, in shipping hogs to centralized markets. Table 18 contains data on hogs having access to feed, either in car or en route, while Table 19 contains data on those shipments which received no feed in car or en route. The

shipments were grouped according to the number of hogs per car as follows (all cars considered as single deck): 60 hogs and less, 61 to 70, 71 to 80, 81 to 90, and 91 and more. It will be noted that in practically every instance there was a decrease in the average weight of the hogs, as the number loaded per car increased. For this reason the average car loading weights did not vary so widely as the fluctuation in the number of animals per car would seem to indicate. Where cars were loaded with fewer than 60 hogs, the average weight of the animals was much greater than where 90 or more hogs were loaded. A study of the figures in Tables 18 and 19, showing shrinkage or fill for the different groups, does not reveal facts which will justify definite conclusions. While there was considerable variation in the different groups in the amount of shrinkage, there is no positive evidence to indicate that the size of load based on number of hogs per car exerts any material influence on the amount of shrinkage. There is some indication that the minimum shrinkage takes place in those shipments where the average number of animals per car approaches 75, and that as the number loaded decreases from or increases to 75, the loss due to shrinkage tends to increase. In five of the six seasonal groupings of dealer shipments this tendency holds true and this would appear to justify the assumption that the optimum number of animals to load to a car to reduce shrinkage to the minimum would be approximately 75. However, much would depend on the weight of the animals, inasmuch as extremely heavy hogs or very light hogs very often show extreme fluctuations in shrinkage, and until more data are available for study definite conclusions as to the effect of the size of load based on the number of animals loaded are not justified. The data in Tables 18 and 19 apply to the same shipments which were used in compiling Tables 16 and 17. Therefore it is apparent that these tables would show the same differences between the amount of shrinkage sustained by farmer shipments and the amount sustained by dealer shipments; that is, farmer shipments shrink less than those made by dealers.

TABLE 18.—*Relation of number of animals per car to shrinkage of hogs having access to feed in transit to centralized markets.*

Season.	Shipped by—	Number of hogs per car. Average.	Number of hogs per car. Range.	Number of cars.	Hours in transit.	Average carloading weight.	Average car sales weight.	Average weight of hogs.	Feed en route, average per hundredweight.	Average shrinkage or gain per hundredweight.[1]
						Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Winter	Dealers	54	44–60	19	19	14,363	14,266	265	1.96	0.67
		65	61–70	40	23	15,815	15,520	240	2.13	1.87
		75	71–80	94	28	16,633	16,347	220	1.91	1.72
		85	81–90	50	22	16,673	16,357	195	2.01	1.89
		99	91–112	21	38	18,496	18,127	186	2.54	1.99
	Farmers	57	56–60	4	28	15,177	14,915	264	1.88	1.72
		63	61–67	7	32	16,161	16,031	255	4.09	.80
		75	71–79	13	25	17,085	16,989	227	2.55	.56
		83	81–87	8	25	16,250	16,103	195	2.52	.90
		96	93–103	8	26	16,838	16,920	174	3.64	+.48
Spring and fall	Dealers	56	51–60	10	26	16,579	16,109	296	2.09	2.83
		66	61–70	33	19	15,584	15,338	235	1.78	1.57
		75	71–80	29	22	16,332	16,073	215	2.08	1.58
		86	82–90	20	18	17,375	17,038	201	1.96	1.94
		97	91–110	9	26	18,576	18,055	190	1.17	2.80
	Farmers	54	51–60	6	24	15,755	15,727	289	1.84	.18
		64	61–70	16	24	15,694	15,690	245	1.60	.03
		72	71–73	4	21	17,142	16,850	238	2.41	1.70
		83	81–87	3	35	16,663	16,620	200	3.71	.26
Summer	Dealers	55	46–60	27	23	13,953	13,516	250	2.87	3.13
		65	61–70	57	22	16,414	16,102	252	1.95	1.90
		76	71–80	37	25	17,078	16,757	224	2.03	1.88
		85	81–90	16	35	17,221	16,859	202	1.56	2.10
		92	91–94	5	30	18,080	17,832	196	2.20	1.37
	Farmers	48	32–59	11	19	12,839	12,916	263	2.53	+.60
		64	61–70	25	16	16,058	16,076	250	2.29	+.11
		75	71–80	18	19	17,641	17,465	234	1.61	.94
		86	82–90	4	19	18,991	19,007	220	2.14	+.09
		96	91–107	5	52	20,655	20,048	213	3.18	2.93

[1] + indicates gain in weight.

TABLE 19.—*Relation of number of animals per car to shrinkage of hogs not having access to feed in transit to centralized markets.*

Season.	Shipped by—	Number of hogs per car. Average.	Number of hogs per car. Range.	Number of cars.	Average hours in transit.	Average carloading weight.	Average car sales weight.	Average weight of hogs.	Average shrinkage or gain per hundredweight.[1]
						Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Winter	Dealers	58	56–59	6	23	13,780	13,447	240	2.42
		63	61–68	15	19	14,523	14,257	229	1.88
		76	71–80	13	17	16,333	16,164	216	1.03
		85	81–90	14	18	17,803	17,369	209	3.44
		102	93–130	7	18	19,534	18,892	192	8.28
	Farmers	67	55–80	8	14	14,407	14,410	253	+ .02
		74	72–76	3	12	15,825	15,740	218	.58
		90	.....	1	13	17,720	17,940	197	+1.24
Spring and fall	Dealers	58	57–58	4	23	12,580	12,130	218	3.58
		68	66–70	4	14	18,985	18,545	280	2.31
		76	72–79	22	13	16,724	16,518	221	1.26
		81	81–82	4	14	17,516	17,077	216	2.50
		102	94–109	3	14	16,635	16,360	163	1.65
	Farmers	59	58–59	2	13	16,930	15,765	272	1.04
		66	61–70	8	17	16,501	16,700	249	+1.21
		77	71–80	7	14	17,449	17,353	224	.55
		83	82–84	2	23	17,908	17,695	216	1.19
Summer	Dealers	63	42–59	16	12	13,452	13,209	255	1.80
		66	61–70	21	16	15,850	15,368	241	3.05
		74	70–80	8	15	16,126	15,633	218	3.06
		88	82–90	14	17	15,081	14,843	172	1.57
		95	91–102	6	15	16,828	16,605	177	1.33
	Farmers	52	45–57	8	10	14,103	14,007	269	.69
		63	.....	1	4	14,530	14,440	231	.62
		76	74–78	6	17	17,115	17,117	226	+ .01
		93	.....	1	15	19,610	18,520	211	5.56

[1] + indicates gain in weight.

Relation of weight of load to shrinkage in transit to centralized markets.—Tables 20, 21, 22, and 23 were constructed to show if the weight of load had any effect on shrinkage of hogs in transit to market. Tables 20 and 21 contain data on dealer and farmer shipments having access to feed in car or en route, while Table 22 contains data on shipments receiving no feed until after arrival at market. Table 23 is a summary of the data on shipments consigned by cooperative shipping associations. With the exception of the data on winter shipments, this table did not include a sufficient number of consignments to warrant conclusions.

TABLE 20.—*Relation of weight of load to shrinkage of hogs in transit to centralized markets. (Dealers' shipments having access to feed in transit.)*

Season.	Number of cars.	Average number hogs per car.	Average time in transit.	Average feed in transit per hundredweight of hogs.	Average car loading weight.	Average car sales weight.	Average sales weight of hogs.	Shrinkage per hundredweight.
			Hours.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Winter	27	65	15	1.94	12,864	12,723	197	1.09
	23	70	18	1.87	14,490	14,288	207	1.16
	24	79	25	2.85	15,435	15,242	196	1.25
	46	79	31	2.37	16,566	16,253	209	1.89
	67	76	26	1.66	17,375	17,095	230	1.61
	22	79	33	2.13	18,461	17,938	235	2.83
	15	93	36	1.86	20,520	20,046	221	2.31
Average	224	76	26	2.04	16,478	16,192	216	1.74
Spring and fall	15	68	17	1.99	12,567	12,394	185	1.37
	8	73	15	2.15	14,695	14,319	202	2.56
	11	77	21	1.89	15,425	15,115	200	2.01
	23	77	24	2.14	16,506	16,287	213	1.33
	24	73	23	1.78	17,479	17,182	239	1.70
	7	68	22	1.62	18,266	17,777	267	2.67
	7	76	18	1.86	19,401	18,943	255	2.36
	6	92	25	1.20	21,652	20,992	233	2.41
Average	101	75	21	1.87	16,613	16,205	221	1.87
Summer	15	59	15	2.71	11,819	11,580	201	2.03
	9	69	19	1.75	14,677	14,211	213	3.18
	24	65	28	2.63	16,483	15,243	238	1.55
	39	69	22	2.03	16,551	16,215	239	2.03
	33	73	35	2.06	17,512	17,134	240	2.16
	11	73	28	1.82	18,160	17,720	248	2.42
	11	79	15	1.32	19,641	19,255	249	1.96
Average	142	69	25	2.09	16,339	16,000	236	2.08

Although there is considerable fluctuation in the averages for the different groups, the figures in Tables 20 and 21, showing average shrinkage or fill indicate that as the weight of the load increased there was a general tendency for the hogs to lose weight proportionately. The least fluctuation in the average amount of shrinkage throughout the year took place in dealer shipments weighing between 15,000 and 19,000 pounds. The lighter loads of dealer shipments showed the least shrinkage during the winter months, while those loads weighing more than 18,000 pounds showed the greatest shrinkage during cold weather.

TABLE 21.—*Relation of weight of load to shrinkage of hogs in transit to centralized markets. (Farmers' shipments having access to feed in transit.)*

Season.	Number of cars.	Average number hogs per car.	Average time in transit.	Average feed in transit per hundredweight of hogs.	Average car loading weight.	Average car sales weight.	Average sales weight of hogs.	Shrinkage or gain per hundredweight.[1]
			Hours.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds*	*Pounds.*
Winter	2	57	29	1.32	12,885	12,680	222	1.58
	5	75	35	4.27	14,397	14,422	192	+ .17
	6	80	26	2.28	15,640	15,563	197	.49
	10	71	29	3.34	16,704	16,610	235	.56
	5	86	26	3.05	17,509	17,270	204	1.37
	7	71	20	2.10	18,613	18,433	261	.97
Average	35	74	26	2.87	16,470	16,352	221	.72
Spring and fall	6	63	20	1.20	13,073	13,212	208	+1.06
	6	64	22	2.92	14,612	14,702	228	+ .62
	8	66	25	2.21	15,903	16,073	240	+1.07
	9	68	25	2.19	17,551	17,368	260	1.04
	5	64	34	1.36	18,485	18,130	289	1.92
Average	29	65	25	2.00	16,007	15,954	246	.33
Summer	9	51	13	2.32	11,521	11,787	225	+2.30
	4	59	13	1.98	14,560	14,565	248	+ .03
	13	66	21	2.36	15,555	15,508	235	.30
	9	63	19	2.91	16,628	16,761	266	+ .80
	10	73	18	1.91	17,395	17,399	240	.32
	9	76	19	1.34	18,268	17,956	243	1.71
	9	83	38	2.43	20,814	20,336	237	2.30
Average	63	69	21	2.19	16,500	16,426	240	.45

[1] + indicates gain in weight.

Dealer shipments receiving feed in car or en route showed a more uniform rate of shrinkage than those not receiving feed. Dealer shipments also showed less fluctuation in shrinkage than shipments made by farmers. The shrinkage on dealer shipments with feed en route ranged between 1 and 3 per cent for loads of all weights. The figures showing average shrinkage on farmer shipments receiving feed en route ranged from a gain in weight of more than 2 per cent to a loss of a like amount, and a total range of more than 4 per cent. Dealer shipments without access to feed showed a range in average shrinkage of almost 4 per cent. Those loads which averaged slightly more than 15,000 pounds which were shipped in the spring and fall weighed slightly more at the market than at loading stations. The data on farmer shipments without access to feed en route were not sufficiently complete to show any uniform tendency as to effect of weight of load on shrinkage. An average of all the data on dealer and farmer shipments without regard to season showed that feed in car or en route appeared to exert little or no influence on the shrinkage or gain. Hogs shipped without access to feed in car or en route showed greater fluctuation in shrinkage than those with access to feed, the latter showing a more uniform tendency to lose weight in proportion to the increase in the weight of load. Farmer shipments below 17,000 pounds in weight, with and without feed, showed a tendency to gain in weight en route to market, rather than to lose weight. Loads exceeding 17,000 pounds in weight showed a shrinkage

which increased sharply as the weight of load increased beyond 18,000 pounds. Dealer shipments showed uniform tendency to shrink from 1½ to 2½ per cent for loads of all weights. An average of all the data by seasons, but without regard to shipping agency or feed in transit, shows that the least shrinkage with hogs took place during the spring and fall months, and the greatest on extremely light and extremely heavy loads in the winter months. Loads weighing between 14,000 and 18,000 pounds sustained the greatest shrinkage during the summer months. The average shrinkage on all the loads weighing less than 18,000 pounds did not exceed 2 per cent, and loads weighing more than 20,000 pounds did not exceed an average of more than 2.6 per cent.

TABLE 22.—*Relation of weight of load to shrinkage of hogs in transit to centralized markets. (Dealers' and farmers' shipments not having access to feed in transit.)*

Season.	Shipped by—	Number of cars.	Average number hogs per car.	Average time in transit.	Average car loading weight.	Average car sales weight.	Average sales weight of hogs.	Average shrinkage or gain per hundredweight.[1]
				Hours.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Winter	Dealers	16	62	20	13,183	12,863	211	2.42
		5	89	29	14,622	14,111	165	3.50
		4	69	25	15,454	15,270	226	1.19
		10	77	14	16,733	16,546	219	1.12
		8	78	17	17,534	17,329	224	1.17
		7	83	16	18,896	18,516	226	2.01
		5	98	17	22,620	21,791	230	3.67
	Average	55	76	19	16,342	16,002	210	2.08
	Farmers	3	62	16	12,775	12,687	205	.69
		1	75	7	16,300	16,380	217	+.49
		2	81	12	17,685	17,755	218	+.40
		1	60	13	18,420	18,440	807	+.11
	Average	7	69	13	15,488	15,484	224	.02
Spring and fall	Dealers	7	68	22	11,919	11,636	175	2.38
		2	76	28	14,615	14,635	192	+.13
		1	94	13	15,890	15,420	169	2.93
		7	80	16	16,509	16,273	206	1.42
		6	80	15	17,666	17,407	220	1.46
		13	64	17	18,708	18,396	252	1.67
		1	66	16	20,860	20,740	316	.57
	Average	37	76	18	16,699	16,335	216	1.59
	Farmers	3	64	15	13,208	13,740	206	+4.03
		2	75	18	15,333	15,600	204	+1.74
		1	79	16	16,400	16,370	208	.18
		6	74	19	17,878	17,347	236	.18
		5	72	14	18,476	18,210	255	1.43
		2	65	12	19,245	19,035	296	1.09
	Average	19	71	16	16,938	16,947	238	+.06
Summer	Dealers	13	54	12	11,647	11,432	217	1.85
		19	80	14	14,330	14,168	179	1.13
		6	68	14	15,493	15,030	228	2.99
		11	76	19	16,765	16,252	222	3.06
		11	72	16	17,662	17,131	246	3.01
		5	74	15	18,773	18,274	255	2.66
	Average	65	71	15	15,218	14,870	209	2.29
	Farmers	2	50	10	12,976	12,770	260	1.79
		2	70	15	14,495	14,465	209	.21
		1	76	4	16,730	15,660	202	.45
		2	66	10	16,530	16,425	262	.64
		4	88	20	18,853	18,675	235	.95
	Average	11	70	14	16,285	16,153	231	.82

[1] + indicates gain in weight.

TABLE 23.—*Relation of weight of load to shrinkage of cooperative shipments of hogs in transit to centralized markets.*

Season.	Number of cars.	Average number hogs per car.	Average car loading weight.	Average car sales weight.	Average sales weight of hogs.	Shrinkage or gain per hundredweight.[1]
			Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Winter	3	73	11,783	11,483	161	2.55
	8	73	14,558	14,440	199	.81
	15	78	15,503	15,329	198	1.12
	29	75	16,485	16,192	221	1.78
	22	77	17,440	17,129	228	1.84
	9	79	18,322	17,967	233	1.94
	5	79	19,738	19,365	249	1.89
Average	91	76	16,590	16,314	214	1.66
Spring and fall	1	54	14,645	14,480	271	1.12
	1	79	15,130	15,120	192	.07
	4	77	16,330	16,118	213	1.30
	1	63	17,210	17,130	273	.46
	2	84	18,600	18,650	221	+ .27
Average	9	74	16,612	16,500	222	.68
Summer	2	45	11,810	11,700	262	.93
	2	62	14,585	13,970	235	4.21
	4	60	16,290	16,073	273	1.34
	2	62	17,335	16,990	282	1.99
Average	10	58	15,263	14,961	258	1.98

[1] + indicates gain in weight.

The data covering cooperative shipments were copied from the records of the managers of the associations, and it was not possible to obtain information relative to the amount of feed the hogs received en route. With the exception of the group of extremely light loads the data on the winter shipments indicate that as the weight of the loads increased there was a tendency for the net shrinkage to increase. The average shrinkage of cooperative shipments was slightly less than that of dealer shipments but more than the average farmer shipments.

Effect of size of hogs on shrinkage in transit to market.—In order to determine whether there is any relation between size of the hogs and the amount of shrinkage, the shipments were segregated into three groups, according to the average weight of the hogs in each load. These groups, with the respective data on shrinkage, are shown in Table 24. It will be noted that the minimum shrinkage was recorded on those loads containing the lighter weight animals, the average for this group being 1.09 per cent, the heavy-weight hogs, averaging 277 pounds, sustaining a shrinkage of 1.77 per cent. The conditions in regard to the number of hours en route, the distance traveled, and the feed supplied, were approximately the same.

The conclusion drawn from the data shown in Table 24 is that the increase of net shrinkage is directly proportional to the weight of the animals.

Summarizing all the data on shrinkage of hogs in transit to central markets, the most striking features brought out are that farmers ship hogs to centralized markets with a smaller shrinkage than that sustained by local dealers; that the shrinkage on local dealer shipments is more uniform for loads of all weights and for the different seasons than on farmer shipments; that feed does not seem to affect the amount of shrinkage materially; that as the weight of load increases there is a tendency for the amount of shrinkage to increase, and this continues until the loads exceed 20,000 pounds in weight, after which the amount does not appear to be affected by weight of load; that as the weight of the hogs increases the net shrinkage increases proportionately.

TABLE 24.—*Relation of size of hogs to shrinkage in transit to centralized markets.*

Number of cars.	Weight of hogs.		Average time in transit.	Length of haul.	Net shrinkage per hundredweight.
	Range.	Average.			
	Pounds.	*Pounds.*	*Hours.*	*Miles.*	*Pounds.*
123	135–195	181	24	252	1.09
583	195–255	226	20	225	1.29
230	255–400	277	21	230	1.77

SHRINKAGE IN TRANSIT DIRECT TO PACKING PLANTS.

Data were collected on shipments of hogs consigned direct to packing plants for the purpose of comparing the shrinkage in such shipments with that in shipments to centralized markets where stock are allowed to rest and are given access to feed and water before weighing. When a shipper makes a contract with a packing company to consign a load of hogs direct an agreement is made as to whether the animals will be weighed as they are unloaded from the cars or whether they will first have access to all the water they can drink or, in some cases, to feed and water. In this report shipments sold under the first plan have been designated as "no fill at destination" shipments, while those which were weighed after being watered have been termed "water fill at destination," shipments and the grouping has been made accordingly.

For purposes of comparison the data have been compiled on the basis of weight of load and on number of hogs per car. Table 25 is the compilation on basis of weight of load, while Table 26 shows the data compiled with regard to the number of animals per car. In studying these tables it must be remembered that practically all consignments made direct to packing plants are hauled relatively short distances by rail, therefore they are not subjected to the various factors causing increased shrinkage brought about by a long haul.

For this reason it is not surprising to find that the shrinkage on this class of shipments is relatively low as compared with the shrinkage on shipments sent to the centralized markets. Likewise the shipments which were not watered before weighing at destination showed less shrinkage than those which were given water, but the average length of haul was only about one-third as great, consequently the figures are not comparable. It will be noted that the average amount of shrinkage is comparatively uniform for the different groups. There is little to indicate that the size of load from the standpoint of weight influences the amount of shrinkage; also the tabulation based on number of hogs per car shows little relationship between the number of animals loaded and the amount of shrinkage. The heavy loads in the "no fill" group shrunk the least while in the "water fill" group they showed the maximum shrinkage. The features in the two tables of greatest interest are the uniformity in the average weights of the hogs and the difference between the percentage of shrinkage of the two classes of shipments.

TABLE 25.—*Relation of number of animals per car and kind of fill to shrinkage of hogs shipped direct to packing plants.*

Season.	Kind of fill.	Number of hogs per car.		Number of cars.	Average length of haul.	Average car loading weight.	Average car sales weight.	Average weight of hogs.	Average shrinkage or gain per hundredweight.
		Average.	Range.						
					Miles.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Winter	Water fill only	53	30–58	10	176	14,487	14,321	273	1.15
		68	65–70	19	195	16,607	16,343	243	1.60
		74	71–80	36	171	17,246	17,039	232	1.20
		85	81–91	7	181	17,264	16,843	203	2.44
	No fill	56	50–60	13	76	14,303	14,145	256	1.11
		66	64–69	5	19	15,973	15,924	239	[1].32
		77	71–80	19	48	17,048	16,924	222	.73
		83	81–87	13	37	16,914	16,788	204	.74
		100	100	2	14	18,540	18,385	185	.84
Spring and fall	Water fill only	56	50–59	8	160	15,689	15,433	281	1.64
		67	61–70	30	164	16,421	16,134	246	1.75
		75	71–80	41	173	17,237	17,977	230	1.51
		85	81–89	9	201	18,225	17,878	215	1.91
		103	95–111	2	161	18,685	18,175	181	2.73
	No fill	66	59–70	3	103	16,880	16,400	257	2.84
		75	72–77	2	76	17,350	17,050	233	1.73
		82	81–83	6	111	17,940	17,660	219	1.56
Summer	Water fill only	31	27–34	2	174	8,180	7,855	268	3.97
		67	60–73	5	282	15,847	15,558	235	1.82
		91	88–93	2	214	14,158	13,705	156	3.20
	No fill	68	66–70	6	71	16,967	16,650	251	1.87
		76	72–80	5	66	16,243	16,006	215	1.46

[1] Indicates gain in weight.

TABLE 26.—*Relation of weight of load and fill to shrinkage of hogs shipped direct to packing plants.*

Treatment at destination.	Number of cars.	Average number of hogs to car.	Average length of haul.	Average car loading weight.	Average car sales weight.	Average weight of hogs.	Shrinkage per hundredweight.
			Miles.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
No fill	5	45	101	13,077	12,944	289	1.02
	9	65	64	14,292	14,074	218	1.52
	10	75	54	15,389	15,153	203	1.53
	15	71	59	16,400	16,105	228	1.80
	21	78	68	17,414	17,276	222	.79
	13	81	35	18,578	18,554	230	.13
Average	74	71	60	16,516	16,341	225	1.06
Water fill	16	56	187	12,325	12,123	220	1.64
	8	65	193	14,598	14,311	224	1.97
	20	69	162	15,534	15,259	222	1.78
	42	74	190	16,480	16,241	223	1.45
	60	72	175	17,469	17,228	243	1.38
	23	74	125	18,326	18,009	248	1.73
	6	75	159	19,496	19,102	259	2.02
	6	83	162	20,584	20,117	247	2.27
Average	171	73	177	16,680	16,413	231	1.60

TOTAL COSTS.

The various items of expense incurred in marketing hogs at centralized markets, as taken from the records collected, average 1.5 cents per hundredweight for loading and bedding cars, 9.8 to 21.2 cents per hundredweight for freight; 4 to 7.3 cents per hundredweight for feed in transit; 8 to 9 cents per hundredweight for feed at destination; 6 cents per hundredweight for commission; and 4 to 5 cents per hundredweight for miscellaneous items of expense. The foregoing costs are computed on the basis of live weight at the market. The total of these items ranges from approximately 33 cents to 50 cents per hundredweight, depending on the length of haul and variations in other factors.

Consignments direct to packing plants as a rule are not subject to charges for feed at destination, nor are they charged yardage, commission, and other items incurred at the centralized markets. These expenses amount to approximately 18 to 20 cents per hundredweight.

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